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general notes

The data contained below are a product of the National Science Foundation's (NSF's) Scientific and Technical Personnel Data System (STPDS). They represent estimates of the demographic, employment, and educational characteristics of scientists and engineers in 1982. The STPDS is a composite of three subsystems, each designed to measure the characteristics of a particular population:

- **The Postcensal Survey of Scientists and Engineers** provides information obtained from almost 95,000 scientists and engineers in 1982. Individuals with scientific, engineering, or related occupations in the 1980 Census of Population constituted the major list from which the Postcensal Survey sample was drawn. Also surveyed were individuals with four or more years of college who were not in a scientific, engineering, or related occupation. The survey was conducted by the Bureau of the Census for NSF.
- **The New Entrants Survey** is designed to measure the number and characteristics of those who earned degrees in science and engineering after the 1980 decennial census was completed. Samples of the graduating classes of 1980 and 1981 were surveyed by the Institute for Survey Research, Temple University, Philadelphia, Pennsylvania, for NSF.
- **The Survey of Doctoral Scientists and Engineers** consists of questionnaire responses from a sample of 60,000 scientists and engineers receiving degrees within the years 1938-80. The sample is drawn from a comprehensive roster of Doctoral Scientists and Engineers maintained by the Commission on Human Resources, National Research Council, National Academy of Sciences. The Survey is conducted by the National Academy of Sciences for NSF.

The method by which these estimates were created differs from that used for past estimates. Mathematica Policy Research, Inc. (MPR) generated the estimates for NSF, utilizing a computer-based model. This model will assist the Foundation in two major areas by (1) providing additional flexibility in the types of cross tabulations which can be produced, and (2) producing estimates on an annual basis, and for years for which survey data are not available.

Data in this publication are the first to incorporate findings of the 1982 Postcensal Survey of Natural and Social Scientists and Engineers. By using principally the Postcensal survey, each decade NSF develops a baseline of data on scientists and engineers. Since there are some differences in the data concepts and definitions used in each Decennial Census, the data presented for 1982 are not comparable with earlier estimates developed by NSF; however, revised historical data for scientists and engineers will be available this summer.

This report, the first of two volumes of 1982 national estimates of the employment and other characteristics of U.S. scientists and engineers, contains primarily data on the employment of scientists and engineers, and some demographic characteristics such as gender, race, and Hispanic status. The second volume will contain additional information on demographic- and employment-related characteristics such as: Citizenship status, reasons for not being in the labor force; reasons for holding a job outside of science or engineering; the number working part-time but seeking full-time employment; annual salaries and total professional income; area of critical national interest in which scientists or engineers are employed; and Federal support status.

Since the Division of Science Resources Studies has just finished reconstituting the STPDS, publications detailing methods and definitions for the national estimates of scientists and engineers used in this report are not yet available. For additional information, please contact:

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section a

technical notes

definition of scientists and engineers

The tables and figures in this report represent the population of scientists and engineers in the United States. Broadly speaking, a person is considered a scientist or engineer if at least two of the following criteria are met:

- Highest degree is in science (including social science) or engineering;
- Employed in a science or engineering (S/E) occupation;
- Self-identification as a scientist or engineer based on total education and work experience.

definitions of primary characteristics

occupation/field of science or engineering

Data on field of science or engineering are classified as follows:

- **Physical sciences**—chemistry, physics, astronomy, and other physical sciences including metallurgy
- **Mathematical sciences**—mathematics and statistics
- **Environmental sciences**—earth, atmospheric, and oceanographic sciences, including geophysics, geology, seismology, and meteorology
- **Life sciences**—agricultural, biological, and medical sciences (excluding those primarily engaged in patient care)
- **Social sciences**—economics, including agricultural economics, sociology, anthropology, and all other social sciences
- **Psychology**
- **Computer specialties**
- **Engineering**

Data on field of employment are derived from responses to questions that request the name of the specialty most closely related to the respondent's principal employment. The specialty is chosen by the respondents from a list provided in the questionnaire. Doctorate-holders who selected an employment specialty not in science or engineering are assigned to a field of science or engineering based on the field of their degree. For those with less than a doctorate, their professional self-identification is used.

primary work activity

Data presented on the work activities of scientists and engineers represent their primary work activities. The data are derived from responses to a series of questions that ask respondents (1) to specify their primary work activity, and (2) to provide a percentage distribution of their work time among 10 to 15 listed activities.

other variables

For information on the various survey instruments used in the report, see the survey questionnaires in section C.

sampling and weighting procedures

The figures in this report are weighted to represent the population of scientists and engineers in the United States. The New Entrants Survey utilized a cluster sampling, so that the weights are reciprocal of the sampling rates. The clusters of respondents were universities and colleges.

The Roster of Doctorates is a comprehensive list of the population of such people. The Survey of Doctorates utilized a simple random sample, so that the weights are again the reciprocal of the sampling ratio.

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The Postcensal Survey was somewhat more complex, involving the following major steps:

- The "universe" was the "long forms" from the 1980 Census of Population. The sample was drawn randomly within geographic strata. Housing units (and persons in group quarters) had either a 1-in-6 chance of selection for long-form recipiency or (in places with precensus populations below 2,500 persons) a 1-in-2 chance of selection. When both sampling rates are taken into account, approximately 19 percent of the housing units were included in the long-form sample.
- The following types of persons were screened out of the long-form sample:
  (a) Those not currently in the labor force *and* who had never worked, or who had last worked before 1975;
  (b) Those who had less than 4 years college *and* had an nonengineering occupation;
  (c) Those who had less than 2 years college *and* had an engineering occupation;
  (d) Those who were institutionalized; and,
  (e) Those who were under 16 years of age.
- The remaining persons were categorized into strata and substrata. Strata were defined by 3-digit current occupation codes as recorded in the 1980 Census. Substrata were defined by race and sex.
- The stratified sample was then sampled, using a systematic random selection procedure within each stratum/substratum. Overall, there was about a 1-in-38 chance of selection at this stage.
- Questionnaires were mailed to 138,080 persons in 1982.
- Over 97,000 persons completed questionnaires and were further stratified by "in-scope" and "out-of-scope" following NSF definitions, available on request to NSF. In-scope is defined to be a scientist or engineer in 1982.
- The weight of each record with a completed questionnaire which was in-scope was multiplied by a "nonresponse adjustment factor."
- The weight of each in-scope record with a completed questionnaire was also multiplied by a "ratio estimation factor," designed to force the distribution of race and sex in the sample to be the same as among the original sample of scientists and engineers in in the 1980 Census.

reliability of scientist and engineer estimates

Since the data on scientists and engineers are derived from sample surveys, the estimates are subject to both sampling and nonsampling errors.

The magnitude of the sampling errors are indicated by the various surveys contained in the following pages and listed below.

Survey	Table
1982 Composite estimates of total scientists and engineers	1
1981 Doctoral scientists and engineers	2
1982 Recent S/E graduates	3,4

The standard error may be used to construct a confidence interval about a given estimate. When the reported standard error is added to or subtracted from an estimate, the resulting range of values reflects an interval within which about 68 percent of all sample estimates surveyed under the same conditions will fall. Intervals reflecting a higher confidence level may be constructed by increasing the number of standard errors for a given estimate. Thus, ±1 standard error defines approximately a 68-percent confidence interval; ±2 standard errors is approximately a 95-percent confidence interval.

calculation of approximate standard errors of the complete tables

For the Postcensal Survey data, approximate standard errors were computed for selected "size of estimate" values. The formula used for this purpose is on page 2- of the March 1983 Technical Documentation provided by Census for the 1980 public-use microdata samples (Census of Population and Housing 1980: Public-Use Microdata Samples Technical Documentation/prepared by the Data User Services Division, Bureau of the Census, Washington, D.C., 1983). The unadjusted standard errors of an estimated characteristic total are thus calculated on the assumption that the data for each field arose from a simple random sampling design (i.e., ignoring any gains in precision attributable to the stratified design actually used). For an estimate y of a characteristic total in an S/E field, the standard error of the estimate y is:

$$Se(\hat{y}) = SQRT[(1/f) * Y * (1 - \hat{y}/N)],$$

where N is the 1982 size of the S/E field (treated as a known quantity from the 1980 Census but actually updated by the 1982 survey data), if f is the sampling rate for the field (relative to the "known" size of the field), and Y is the (weighted) estimate of a characteristic total for persons within the specified field (i.e., Y is the "size of the estimate").

For the New Entrants Survey data, approximate standard errors were calculated by the Institute for Survey Research of Temple University for the same eight fields for y ("size of estimate") values ranging upward from 100 to 10,000 or more, but not exceeding the size of the new entrant group for the field in question.

Assuming, for purposes of approximating the standard error of an estimate total of a characteristic within a field, that it is proper to pool the estimates from the Postcensal Survey and the New Entrants Survey, we may calculate a result standard error as:

$$Se(\hat{y}) = SQRT[(n_1 - 1) * Se_1^2(\hat{y}) + (n_2 - 1) * Se_2 2(\hat{y})] / (n_1 + n_2 - 2)]$$

where n_1 is the obtained in-scope size from the Postcensal Survey and n_2 is the obtained in-scope sample size from the New Entrants survey; $Se_1(\hat{y})$ and $Se_2(\hat{y})$ are the corresponding approximate standard errors obtained separately for the two surveys for a characteristic total.

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section b

statistical tables

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Table B-1. Scientists and engineers by field, sex, and employment status: 1982

Field and sex	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Total, all fields	3506000	3253000	74200	178800
Men	3068800	2864000	55800	149000
Women	437200	388900	18500	29800
Total scientists	1519300	1405700	38500	75100
Men	1147200	1075100	22700	49400
Women	372100	330600	15700	25700
Physical scientists	249400	227400	5800	16300
Men	223100	205100	4600	13400
Women	26400	22300	1200	2900
Chemists	170800	154100	4200	12500
Men	149700	136400	3300	10100
Women	21100	17700	1000	2400
Physicists/astronomers	51200	47600	900	2600
Men	48300	45200	800	2300
Women	2900	2500	100	300
Other physical scientists	27500	25600	600	1200
Men	25100	23500	500	1000
Women	2400	2100	100	200
Mathematical scientists	86300	79400	1700	5200
Men	57900	54000	1000	3000
Women	28300	25300	800	2200
Mathematicians	68100	62500	1400	4200
Men	47800	44600	700	2500
Women	20300	17900	700	1800
Statisticians	18200	16900	300	900
Men	10100	9400	200	500
Women	8100	7500	100	500
Computer specialists	309100	299000	3200	6900
Men	224900	220300	2100	2400
Women	84300	78700	1000	4500

See footnotes at end of table.

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Table B-1. Scientists and engineers by field, sex, and employment status: 1982-Continued

Field and sex	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Environmental scientists	95300	87200	2600	5500
Men	81100	74800	1900	4400
Women	14200	12400	700	1200
Earth scientists	80200	73600	2000	4600
Men	67600	62500	1500	3500
Women	12700	11100	500	1100
Oceanographers	3800	3400	300	100
Men	3200	2900	200	100
Women	600	400	200	(1)
Atmospheric scientists	11200	10300	200	800
Men	10300	9400	200	700
Women	1000	900	(1)	100
Life scientists	365500	337100	8400	20000
Men	286900	268500	4700	13700
Women	78600	68600	3700	6300
Biological scientists	254000	233800	6000	14200
Men	196800	184200	3000	9500
Women	57200	49600	3000	4700
Agricultural scientists	80200	73800	2100	4300
Men	66700	61800	1400	3400
Women	13500	12000	600	900
Medical scientists	31200	29500	300	1400
Men	23400	22500	200	700
Women	7800	7000	100	700
Psychologists	149400	138400	4500	6500
Men	88300	83000	2400	2900
Women	61100	55400	2100	3600
Social scientists	264300	237200	12300	14700
Men	185000	169300	6100	9600
Women	79300	67900	6200	5100

See footnotes at end of table.

Table B-1. Scientists and engineers by field, sex, and employment status: 1982-Continued

Field and sex	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Economists	113700	103100	4500	6100
Men	92300	84600	2900	4800
Women	21400	18400	1500	1400
Sociologists/anthropologists	63000	57000	2900	3100
Men	35400	32700	900	1800
Women	27600	24200	2000	1300
Other social scientists	87600	77200	4900	5500
Men	57300	52000	2300	3100
Women	30300	25200	2700	2400
Total engineers	1986700	1847200	35800	103700
Men	1921600	1788900	33000	99600
Women	65100	58300	2700	4100
Aeronautical/astronautical	87100	80800	1500	4700
Men	84800	78700	1400	4700
Women	2200	2100	100	(1)
Chemical	119500	107700	3300	8500
Men	112000	101600	2900	7500
Women	7500	6100	400	1000
Civil	277600	258200	5200	14200
Men	270600	252200	4800	13700
Women	6900	6100	400	500
Electrical/electronics	462200	437700	5400	19100
Men	452000	428600	4900	18500
Women	10200	9100	500	600
Industrial	123100	113100	2800	7200
Men	117900	108600	2500	6800
Women	5200	4500	300	300

See footnotes at end of table.

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Table B-1. Scientists and engineers by field, sex, and employment status: 1982-Continued

Field and sex	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Materials	43000	39200	1000	2800
Men	40900	37500	700	2700
Women	2100	1700	300	100
Mechanical	388700	357900	7600	23300
Men	380900	350700	7200	22900
Women	7900	7100	300	400
Mining	15800	14200	400	1200
Men	15100	13700	300	1100
Women	600	500	100	100
Nuclear	19200	18200	500	500
Men	18700	17900	400	400
Women	500	400	(1)	100
Petroleum	29100	27700	400	1000
Men	27600	26300	300	1000
Women	1500	1400	100	(1)
Other engineers	421500	392500	7900	21200
Men	401000	373200	7500	20300
Women	20600	19300	400	900

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-2. Scientists and engineers by field, race, and employment status: 1982

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Total, all fields	3506000	3253000	74200	178800
White	3224800	2991900	64100	168800
Black	76900	71500	3500	2000
Asian	144500	134600	4700	5200
Native American	16400	15600	200	600
Other	43400	39300	1900	2200
Total scientists	1519300	1405700	38500	75100
White	1396600	1294200	33100	69300
Black	43200	40000	1900	1300
Asian	52700	48000	2100	2700
Native American	6900	6500	100	300
Other	19900	17000	1400	1500
Physical scientists	249400	227400	5800	16300
White	232400	212700	4900	14700
Black	4100	3500	200	400
Asian	9300	8200	500	600
Native American	800	600	(1)	200
Other	2800	2300	100	400
Chemists	170800	154100	4200	12500
White	157900	143100	3600	11200
Black	3500	2900	200	400
Asian	7400	6400	500	500
Native American	600	500	(1)	200
Other	1400	1200	(1)	200
Physicists/astronomers	51200	47600	900	2600
White	48400	45200	800	2400
Black	500	400	100	(1)
Asian	1300	1200	(1)	100
Native American	100	100	(1)	(1)
Other	900	700	100	200

See footnotes at end of table.

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Table B-2. Scientists and engineers by field, race, and employment status: 1982-Continued

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Other physical scientists	27500	25600	600	1200
White	26200	24400	600	1200
Black	200	200	(1)	(1)
Asian	600	600	(1)	(1)
Native American	(1)	(1)	(1)	(1)
Other	500	400	(1)	(1)
Mathematical scientists	86300	79400	1700	5200
White	78500	72300	1500	4700
Black	3800	3600	200	100
Asian	3100	2700	100	400
Native American	100	100	(1)	(1)
Other	700	600	(1)	(1)
Mathematicians	68100	62500	1400	4200
White	62200	57100	1200	4000
Black	2900	2600	200	100
Asian	2300	2100	(1)	200
Native American	100	100	(1)	(1)
Other	600	500	(1)	(1)
Statisticians	18200	16900	300	900
White	16300	15300	300	700
Black	1000	1000	(1)	(1)
Asian	800	600	(1)	200
Native American	(1)	(1)	(1)	(1)
Other	100	100	(1)	(1)
Computer specialists	309100	299000	3200	6900
White	281500	272300	2800	6400
Black	9200	8900	100	200
Asian	13500	13100	300	200
Native American	1100	1100	(1)	(1)
Other	3900	3700	100	200

See footnotes at end of table.

Table B-2. Scientists and engineers by field, race, and employment status: 1982-Continued

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Environmental scientists	95300	87200	2600	5500
White	88400	80900	2400	5100
Black	600	600	(1)	100
Asian	3800	3600	100	100
Native American	900	900	(1)	(1)
Other	1500	1200	100	200
Earth scientists	80200	73600	2000	4600
White	74800	68500	1900	4400
Black	500	500	(1)	(1)
Asian	3000	2900	100	(1)
Native American	700	700	(1)	(1)
Other	1200	900	100	200
Oceanographers	3800	3400	300	100
White	3300	2900	300	100
Black	100	(1)	(1)	100
Asian	100	100	(1)	(1)
Native American	200	200	(1)	(1)
Other	200	200	(1)	(1)
Atmospheric scientists	11200	10300	200	800
White	10300	9400	200	700
Black	(1)	(1)	(1)	(1)
Asian	800	600	(1)	100
Native American	(1)	(1)	(1)	(1)
Other	100	100	(1)	(1)
Life scientists	365500	337100	8400	20000
White	343600	316900	7900	18800
Black	8500	8000	200	300
Asian	8500	7800	200	600
Native American	1500	1300	(1)	100
Other	3300	3000	200	200

See footnotes at end of table.

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Table B-2. Scientists and engineers by field, race, and employment status: 1982-Continued

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Biological scientists	254000	233800	6000	14200
White	238400	219200	5700	13500
Black	6700	6400	(1)	300
Asian	5700	5200	100	400
Native American	700	700	(1)	(1)
Other	2600	2300	200	100
Agricultural scientists	80200	73800	2100	4300
White	76000	70000	1900	4000
Black	1400	1300	100	(1)
Asian	1700	1600	100	100
Native American	700	600	(1)	100
Other	500	400	(1)	100
Medical scientists	31200	29500	300	1400
White	29300	27700	300	1300
Black	400	400	100	(1)
Asian	1100	1000	(1)	100
Native American	100	100	(1)	(1)
Other	300	300	(1)	(1)
Psychologists	149400	138400	4500	6500
White	140400	130400	4000	6000
Black	5000	4500	400	100
Asian	1500	1200	(1)	200
Native American	1100	1000	100	(1)
Other	1500	1300	(1)	200
Social scientists	264300	237200	12300	14700
White	231800	208700	9500	13600
Black	12000	10900	900	200
Asian	12900	11300	900	600
Native American	1500	1500	(1)	(1)
Other	6200	4900	1000	400

See footnotes at end of table.

Table B-2. Scientists and engineers by field, race, and employment status: 1982-Continued

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Economists	113700	103100	4500	6100
White	100300	91200	3500	5600
Black	2500	2400	100	(1)
Asian	8100	7200	600	400
Native American	900	900	(1)	(1)
Other	1800	1400	300	100
Sociologists/anthropologists	63000	57000	2900	3100
White	54100	49300	2100	2700
Black	4400	4200	100	200
Asian	1800	1700	100	(1)
Native American	400	400	(1)	(1)
Other	2300	1400	700	200
Other social scientists	87600	77200	4900	5500
White	77400	68200	4000	5200
Black	5100	4400	700	(1)
Asian	3000	2400	300	200
Native American	100	100	(1)	(1)
Other	2100	2100	(1)	(1)
Total engineers	1986700	1847200	35800	103700
White	1828200	1697700	31000	99500
Black	33700	31500	1500	700
Asian	91800	86600	2600	2600
Native American	9500	9100	100	300
Other	23600	22300	500	700
Aeronautical/astronautical	87100	80800	1500	4700
White	82100	76000	1300	4700
Black	1200	1200	(1)	(1)
Asian	2800	2600	100	(1)
Native American	200	200	(1)	(1)
Other	900	900	(1)	(1)

See footnotes at end of table.

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Table B-2. Scientists and engineers by field, race, and employment status: 1982-Continued

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Chemical	119500	107700	3300	8500
White	108200	97700	2700	7800
Black	1300	1000	200	100
Asian	8000	7300	300	400
Native American	200	200	(1)	(1)
Other	1800	1500	100	200
Civil	277600	258200	5200	14200
White	248900	231100	4500	13300
Black	3900	3700	100	100
Asian	18700	17700	400	700
Native American	1100	1000	(1)	100
Other	4900	4800	100	(1)
Electrical/electronics	462200	437700	5400	19100
White	419800	397200	4600	18000
Black	10500	9700	400	400
Asian	24800	23800	300	700
Native American	2300	2300	(1)	(1)
Other	4900	4700	100	100
Industrial	123100	113100	2300	7200
White	116200	106900	2400	6900
Black	2400	2200	200	(1)
Asian	3100	2700	300	200
Native American	400	400	(1)	(1)
Other	1000	900	(1)	100
Materials	43000	39200	1000	2800
White	39500	36100	800	2700
Black	400	400	(1)	(1)
Asian	2600	2400	100	100
Native American	200	200	(1)	(1)
Other	300	200	(1)	(1)

See footnotes at end of table.

Table B-2. Scientists and engineers by field, race, and employment status: 1982-Continued

Field and race	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Mechanical	388700	357900	7600	23300
White	361900	332800	6400	22700
Black	4000	3800	200	(1)
Asian	16700	15600	800	300
Native American	2000	1900	(1)	100
Other	4200	3900	100	200
Mining	15800	14200	400	1200
White	15000	13500	400	1200
Black	(1)	(1)	(1)	(1)
Asian	200	200	(1)	(1)
Native American	400	400	(1)	(1)
Other	100	(1)	(1)	(1)
Nuclear	19200	18200	500	500
White	17600	16700	400	500
Black	100	100	(1)	(1)
Asian	1200	1100	(1)	(1)
Native American	(1)	(1)	(1)	(1)
Other	200	200	(1)	(1)
Petroleum	29100	27700	400	1000
White	27200	25900	300	1000
Black	300	300	(1)	(1)
Asian	500	500	(1)	(1)
Native American	500	500	(1)	(1)
Other	500	500	(1)	(1)
Other engineers	421500	392500	7900	21200
White	391700	363800	7100	20800
Black	9600	9100	400	100
Asian	13200	12800	300	100
Native American	2100	2000	(1)	100
Other	4900	4700	100	100

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-3. Scientists and engineers of Hispanic origin by field and employment status: 1982

Field	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Total, all fields	75200	70000	2000	3100
Total scientists	31200	28100	1100	2000
Physical scientists	4400	3600	200	600
Chemists	2700	2200	200	300
Physicists/astronomers	1200	900	100	200
Other physical scientists	500	500	(1)	(1)
Mathematical scientists	1600	1400	(1)	100
Mathematicians	1100	1000	(1)	100
Statisticians	500	500	(1)	(1)
Computer specialists	4700	4600	(1)	100
Environmental scientists	1500	1400	(1)	100
Earth scientists	1300	1200	(1)	(1)
Oceanographers	(1)	(1)	(1)	(1)
Atmospheric scientists	200	100	(1)	100
Life scientists	7500	6700	200	500
Biological scientists	4800	4300	200	200
Agricultural scientists	1800	1500	(1)	300
Medical scientists	900	900	(1)	(1)
Psychologists	2500	2300	(1)	200
Social scientists	9100	8000	700	400
Economists	2700	2300	400	100
Sociologists/anthropologists	3300	3000	300	100
Other social scientists	3000	2800	(1)	200

See footnotes at end of table.

Table B-3. Scientists and engineers of Hispanic origin by field and employment status: 1982-Continued

Field	Employment status			
	Total	Total employed	Unemployed/ seeking	Outside the labor force
Total engineers	44000	41900	900	1200
Aeronautical/astronautical	1600	1600	(1)	(1)
Chemical	3200	3000	100	100
Civil	8500	8000	300	100
Electrical/electronics	9400	9000	100	200
Industrial	2900	2700	(1)	100
Materials	400	300	(1)	100
Mechanical	7200	7000	100	200
Mining	100	100	(1)	(1)
Nuclear	200	200	(1)	(1)
Petroleum	1000	900	(1)	100
Other engineers	9500	9200	100	100

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-4. Scientists and engineers by field, sex, and race: 1982

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Total, all fields	3506000	3224800	76900	144500	16400	43400
Men	3068800	2842900	51700	123200	14400	36500
Women	437200	381900	25200	21400	2000	6900
Total scientists	1519300	1396600	43200	52700	6900	19900
Men	1147200	1066800	23900	36600	5300	14500
Women	372100	329800	19300	16100	1600	5400
Physical scientists	249400	232400	4100	9300	800	2800
Men	223100	209200	3200	7200	800	2700
Women	26400	23100	1000	2100	(1)	100
Chemists	170800	157900	3500	7400	600	1400
Men	149700	139800	2500	5400	600	1300
Women	21100	18000	900	2000	(1)	100
Physicists/astronomers	51200	48400	500	1300	100	900
Men	48300	45600	500	1200	100	900
Women	2900	2800	(1)	100	(1)	(1)
Other physical scientists	27500	26200	200	600	(1)	500
Men	25100	23800	100	600	(1)	400
Women	2400	2300	(1)	(1)	(1)	(1)
Mathematical scientists	86300	78500	3800	3100	100	700
Men	57900	54200	1000	2200	100	400
Women	28300	24300	2800	900	(1)	300
Mathematicians	68100	62200	2900	2300	100	600
Men	47800	44600	900	1900	100	300
Women	20300	17600	1900	500	(1)	200
Statisticians	18200	16300	1000	800	(1)	100
Men	10100	9600	100	400	(1)	(1)
Women	8100	6700	900	500	(1)	(1)
Computer specialists	309100	281500	9200	13500	1100	3900
Men	224900	208700	4000	8500	800	2900
Women	84300	72800	5200	5000	300	1000

See footnotes at end of table.

Table B-4. Scientists and engineers by field, sex, and race: 1982-Continued

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Environmental scientists	95300	88400	600	3800	900	1500
Men	81100	74500	600	3700	800	1400
Women	14200	14000	100	100	(1)	(1)
Earth scientists	80200	74800	500	3000	700	1200
Men	67600	62300	500	2900	700	1200
Women	12700	12500	(1)	100	(1)	(1)
Oceanographers	3800	3300	100	100	200	200
Men	3200	2700	100	100	200	100
Women	600	600	(1)	(1)	(1)	(1)
Atmospheric scientists	11200	10300	(1)	800	(1)	100
Men	10300	9400	(1)	700	(1)	100
Women	1000	900	(1)	(1)	(1)	(1)
Life scientists	365500	343600	8500	8500	1500	3300
Men	286900	270600	7100	6000	1100	2100
Women	78600	73000	1400	2500	400	1300
Biological scientists	254000	238400	6700	5700	700	2600
Men	196800	185500	5600	3900	300	1400
Women	57200	52900	1100	1800	400	1100
Agricultural scientists	80200	76000	1400	1700	700	500
Men	66700	63100	1200	1400	700	300
Women	13500	12800	200	400	(1)	100
Medical scientists	31200	29300	400	1100	100	300
Men	23400	22000	300	700	100	300
Women	7800	7300	100	400	(1)	(1)
Psychologists	149400	140400	5000	1500	1100	1500
Men	88300	83300	2600	600	800	1000
Women	61100	57100	2400	900	300	400
Social scientists	264300	231800	12000	12900	1500	6200
Men	185000	166300	5500	8300	900	4000
Women	79300	65500	6400	4600	600	2200
Economists	113700	100300	2500	8100	900	1800
Men	92300	83800	900	5500	700	1400
Women	21400	16500	1600	2700	300	400

See footnotes at end of table.

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Table B-4. Scientists and engineers by field, sex, and race: 1982-Continued

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Sociologists/anthropologists	63000	54100	4400	1800	400	2300
Men	35400	30600	2200	700	300	1600
Women	27600	23500	2200	1100	100	700
Other social scientists	87600	77400	5100	3000	100	2100
Men	57300	51900	2400	2100	(1)	900
Women	30300	25500	2700	900	100	1200
Total engineers	1986700	1828200	33700	91800	9500	23600
Men	1921600	1776100	27800	86500	9100	22000
Women	65100	52100	5900	5300	400	1500
Aeronautical/astronautical	87100	82100	1200	2800	200	900
Men	84800	80100	1100	2600	200	800
Women	2200	1900	100	100	(1)	100
Chemical	119500	108200	1300	8000	200	1800
Men	112000	102300	800	7200	200	1500
Women	7500	5900	500	800	(1)	300
Civil	277600	248900	3900	18700	1100	4900
Men	270600	243100	3600	18100	1100	4800
Women	6900	5700	300	700	(1)	200
Electrical/electronics	462200	419800	10500	24800	2300	4900
Men	452000	412300	9400	23600	2300	4500
Women	10200	7500	1100	1200	(1)	400
Industrial	123100	116200	2400	3100	400	1000
Men	117900	112000	1700	2900	400	900
Women	5200	4200	700	200	(1)	(1)
Materials	43000	39500	400	2600	200	300
Men	40900	37800	300	2400	200	300
Women	2100	1700	100	200	(1)	(1)

See footnotes at end of table.

Table B-4. Scientists and engineers by field, sex, and race: 1982-Continued

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Mechanical	388700	361900	4000	16700	2000	4200
Men	380900	355100	3500	16200	2000	4000
Women	7900	6700	500	500	(1)	200
Mining	15800	15000	(1)	200	400	100
Men	15100	14400	(1)	200	400	100
Women	600	600	(1)	(1)	(1)	(1)
Nuclear	19200	17600	100	1200	(1)	200
Men	18700	17200	100	1200	(1)	200
Women	500	500	(1)	(1)	(1)	(1)
Petroleum	29100	27200	300	500	500	500
Men	27600	26000	300	500	400	500
Women	1500	1200	(1)	(1)	100	(1)
Other engineers	421500	391700	9600	13200	2100	4900
Men	401000	375600	7000	11800	2000	4600
Women	20600	16100	2600	1400	100	300

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-5. Employed scientists and engineers by field, sex, and type of employer: 1982

Field and sex	Type of employer									
	Total	Business and industry	Educational insts.	Non-profit orgs.	Federal gov't	Military	State/local gov't	Other gov't	Other	No report
Total, all fields	3253000	2186400	391800	109800	284400	16900	168500	8800	7800	78500
Men	2864000	1984900	300700	77900	250400	15900	147200	6800	6800	73400
Women	388900	201500	91100	31900	34000	1000	21200	2000	1100	5100
Total scientists	1405700	712300	341100	85600	152900	5500	83100	6400	3300	15700
Men	1075100	558100	252800	54200	122200	5000	63900	4400	2300	12100
Women	330600	154200	88300	31300	30600	500	19200	2000	1000	3600
Physical scientists	227400	135800	48400	8900	24000	600	6300	100	600	2600
Men	205100	123000	43300	7800	22200	600	5300	100	500	2400
Women	22300	12800	5100	1100	1800	(1)	1100	(1)	100	200
Chemists	154100	106100	26900	3700	10300	300	4900	(1)	300	1600
Men	136400	95000	23500	2600	9300	300	4100	(1)	200	1400
Women	17700	11100	3500	1000	1000	(1)	800	(1)	100	100
Physicists/astronomers	47600	17200	17500	3500	8200	200	200	100	(1)	800
Men	45200	16300	16300	3400	7900	200	200	100	(1)	800
Women	2500	900	1200	100	300	(1)	(1)	(1)	(1)	(1)
Other physical scientists	25600	12600	4000	1800	5500	200	1200	(1)	300	200
Men	23500	11800	3500	1700	4900	100	1000	(1)	300	200
Women	2100	800	500	(1)	600	(1)	200	(1)	(1)	(1)
Mathematical scientists	79400	26300	37300	2100	10800	100	1600	(1)	200	1000
Men	54000	19600	25900	1000	5600	100	1000	(1)	100	700
Women	25300	6600	11400	1100	5100	(1)	600	(1)	200	300
Mathematicians	62500	20700	32900	1000	6500	(1)	400	(1)	200	900
Men	44600	16400	22900	500	3900	(1)	300	(1)	(1)	600
Women	17900	4300	10000	500	2600	(1)	100	(1)	100	300
Statisticians	16900	5600	4400	1100	4300	100	1200	(1)	100	100
Men	9400	3300	3000	400	1800	100	700	(1)	(1)	100
Women	7500	2400	1400	700	2500	(1)	500	(1)	(1)	(1)
Computer specialists	299000	237100	16800	8400	20800	1400	10700	300	700	2800
Men	220300	176300	12300	5700	14100	1200	7800	200	400	2400
Women	78700	60800	4500	2800	6700	100	3000	100	300	400

See footnotes at end of table.

Table B-5. Employed scientists and engineers by field, sex, and type of employer: 1982-Continued

Field and sex	Type of employer									
	Total	Business and industry	Educational insts.	Non-profit orgs.	Federal gov't	Military	State/local gov't	Other gov't	Other	No report
Environmental scientists	87200	54200	10800	900	14900	1000	4200	100	200	1000
Men	74800	47100	9200	600	12500	900	3500	100	100	900
Women	12400	7200	1700	300	2400	100	600	(1)	(1)	100
Earth scientists	73600	50800	7800	400	9600	200	3800	(1)	200	800
Men	62500	43800	6400	200	7900	200	3200	(1)	100	700
Women	11100	7000	1400	200	1800	(1)	600	(1)	(1)	100
Oceanographers	3400	600	1300	200	1200	100	(1)	(1)	(1)	(1)
Men	2900	500	1200	100	1100	100	(1)	(1)	(1)	(1)
Women	400	100	100	100	100	(1)	(1)	(1)	(1)	(1)
Atmospheric scientists	10300	2900	1700	300	4000	800	300	100	(1)	200
Men	9400	2800	1600	200	3500	700	300	100	(1)	200
Women	900	100	200	100	500	(1)	(1)	(1)	(1)	(1)
Life scientists	337100	110300	109800	21200	57100	800	33400	500	700	3200
Men	268500	88300	83400	14300	49300	600	28900	500	600	2600
Women	68600	22100	26500	6900	7700	200	4500	(1)	100	700
Biological scientists	233800	71600	75300	14200	45800	500	23800	200	500	2000
Men	184200	57100	55000	9700	39500	300	20500	200	400	1500
Women	49600	14400	20300	4500	6300	200	3200	(1)	100	500
Agricultural scientists	73800	33800	18700	2300	9200	(1)	8600	300	300	700
Men	61800	27500	16100	1200	8200	(1)	7700	300	200	600
Women	12000	6300	2600	1200	1000	(1)	800	(1)	(1)	100
Medical scientists	29500	5000	15800	4600	2100	300	1100	100	(1)	500
Men	22500	3600	12300	3400	1700	300	600	100	(1)	400
Women	7000	1400	3500	1200	400	(1)	500	(1)	(1)	100
Psychologists	138400	45300	52200	26000	3300	800	8100	(1)	500	2300
Men	83000	26400	31600	15600	2300	700	5200	(1)	300	1000
Women	55400	18900	20600	10500	1000	100	2900	(1)	200	1300
Social scientists	237200	103200	65700	18100	22100	900	18700	5300	400	2900
Men	169300	77400	47200	9400	16200	900	12200	3500	300	2200
Women	67900	25800	18500	8600	5800	(1)	6500	1900	200	700

See footnotes at end of table.

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Table B-5. Employed scientists and engineers by field, sex, and type of employer: 1982-Continued

Field and sex	Type of employer									
	Total	Business and industry	Educational insts.	Non-profit orgs.	Federal gov't	Military	State/ local gov't	Other gov't	Other	No report
Economists	103100	53300	21800	3100	14800	(1)	3500	4600	300	1600
Men	84600	44200	19300	2400	11600	(1)	2200	3200	100	1400
Women	18400	9100	2500	600	3200	(1)	1300	1400	100	200
Sociologists/anthropologists	57000	21300	20300	4700	2400	700	6600	300	100	600
Men	32700	12700	11500	1300	1200	700	4500	100	100	400
Women	24200	8600	8700	3400	1100	(1)	2000	200	(1)	100
Other social scientists	77200	28600	23600	10300	4900	100	8600	400	(1)	700
Men	52000	20500	16300	5700	3400	100	5500	200	(1)	300
Women	25200	8100	7300	4600	1500	(1)	3200	200	(1)	300
Total engineers	1847200	1474200	50700	24200	131600	11500	85400	2400	4600	62800
Men	1788900	1426800	47900	23600	128100	10900	83300	2400	4500	61300
Women	58300	47300	2700	600	3400	500	2100	(1)	100	1500
Aeronautical/astronautical	80800	59800	2300	1000	13300	1500	400	100	100	2400
Men	78700	58500	2100	1000	13100	1100	400	100	100	2300
Women	2100	1400	200	(1)	200	300	(1)	(1)	(1)	(1)
Chemical	107700	97200	2900	1300	2900	100	800	200	(1)	2300
Men	101600	91500	2800	1200	2800	100	800	200	(1)	2200
Women	6100	5700	100	100	100	(1)	(1)	(1)	(1)	100
Civil	258200	157200	5700	1600	24300	2300	57100	500	1000	8500
Men	252200	153700	5500	1500	23500	2300	55900	500	1000	8300
Women	6100	3600	200	100	800	(1)	1200	(1)	(1)	200
Electrical/electronics	437700	354000	13300	7500	38900	3400	4700	300	1100	14500
Men	428600	346700	12600	7300	38400	3300	4700	300	1100	14200
Women	9100	7400	700	100	500	100	(1)	(1)	(1)	300
Industrial	113100	100200	1900	1300	4400	200	1100	100	100	3900
Men	108600	96000	1900	1300	4300	200	1100	100	100	3700
Women	4500	4200	(1)	(1)	100	(1)	(1)	(1)	(1)	200

See footnotes at end of table.

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Table B-5. Employed scientists and engineers by field, sex, and type of employer: 1982-Continued

Field and sex	Type of employer									
	Total	Business and industry	Educational insts.	Non-profit orgs.	Federal gov't	Military	State/local gov't	Other gov't	Other	No report
Materials	39200	33400	2300	400	2000	(1)	200	(1)	100	700
Men	37500	31900	2200	400	1900	(1)	200	(1)	100	700
Women	1700	1500	100	(1)	100	(1)	(1)	(1)	(1)	100
Mechanical	357900	310500	10100	4000	18100	1100	3200	100	800	9900
Men	350700	304600	9400	3900	17900	1100	3100	100	700	9800
Women	7100	5900	800	100	200	(1)	100	(1)	(1)	100
Mining	14200	12100	600	100	600	(1)	400	(1)	100	200
Men	13700	11800	600	100	600	(1)	400	(1)	100	200
Women	500	300	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
Nuclear	18200	12200	500	500	3300	700	200	(1)	300	700
Men	17900	11900	500	500	3200	700	200	(1)	300	700
Women	400	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Petroleum	27700	24400	200	100	800	(1)	300	100	100	1600
Men	26300	23100	200	100	700	(1)	300	100	100	1600
Women	1400	1300	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
Other engineers	392500	313100	10800	6400	22900	2200	17000	1100	900	18100
Men	373200	297200	10200	6200	21600	2100	16300	1100	900	17500
Women	19300	15800	600	100	1200	100	700	(1)	(1)	600

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-6. Employed scientists and engineers by field, sex, and primary work activity: 1982

Field and sex	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Total, all fields	3253000	1001700	106600	218700	676400	838200	272000	566200	224300	159500	418500	297400	178600	134700
Men	2864000	902000	84900	183400	633700	779000	254700	524400	170000	145700	388800	219800	133500	125300
Women	388900	99700	21800	35300	42700	59200	17300	41900	54300	13800	29700	77600	45200	9400
Total scientists	1405700	370400	97500	153000	119900	327500	108000	219500	194200	53600	98600	221100	110200	30100
Men	1075100	292300	76100	120700	95500	276600	93200	183400	142000	42500	80400	150000	67700	23500
Women	330600	78100	21400	32300	24400	50900	14800	36100	52200	11100	18200	71000	42500	6700
Physical scientists	227400	101300	23100	43200	35000	53800	30000	23700	28500	3000	26000	5000	4500	5300
Men	205100	91300	21100	38200	32000	51300	29200	22200	25400	2600	22000	3900	3600	4900
Women	22300	10000	2000	5000	3000	2400	900	1500	3100	300	4100	1100	900	400
Chemists	154100	65500	10300	28800	26300	37700	19200	18500	17000	1100	22800	3300	3300	3600
Men	136400	57700	9100	24900	23700	35800	18600	17300	14700	900	18900	2600	2500	3200
Women	17700	7800	1200	3900	2700	1800	700	1200	2300	100	3900	700	800	300
Physicists/astronomers	47600	22000	9700	7700	4500	11100	8100	3000	9600	700	1300	1000	900	1100
Men	45200	20900	9100	7400	4400	10800	8000	2800	9000	700	1200	700	800	1100
Women	2500	1100	600	400	100	300	100	200	600	(1)	100	300	100	(1)
Other physical scientists	25600	13900	3000	6600	4200	5000	2700	2300	1900	1200	2000	800	300	600
Men	23500	12800	2900	6000	3900	4700	2600	2100	1700	1000	1900	600	300	600
Women	2100	1100	200	600	300	300	100	200	200	200	100	200	(1)	(1)
Mathematical scientists	79400	12900	3300	5600	4000	17900	7600	10300	30100	1500	2200	13300	500	1100
Men	54000	9100	3100	3600	2500	14400	5900	8400	20200	700	1900	6500	300	900
Women	25300	3800	200	2100	1500	3500	1700	1800	9900	800	300	6800	200	200
Mathematicians	62500	10500	3200	3700	3600	15900	6600	9200	27900	700	1800	4400	500	900
Men	44600	7800	3000	2600	2200	12800	5100	7700	18400	300	1700	2600	300	700
Women	17900	2700	200	1200	1300	3100	1500	1500	9400	400	100	1900	200	200
Statisticians	16900	2400	100	1900	400	2000	1000	1100	2200	800	400	8900	(1)	200
Men	9400	1300	100	1000	200	1600	800	700	1700	400	200	4000	(1)	200
Women	7500	1100	(1)	900	100	400	100	300	500	400	200	4900	(1)	(1)

See footnotes at end of table.

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Table B-6. Employed scientists and engineers by field, sex, and primary work activity: 1982-Continued

Field and sex	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Computer specialists	299000	57000	1100	6000	49900	42500	16700	25800	7500	16400	8700	156500	5300	5100
Men	220300	42200	1000	4200	36900	35600	13500	22100	4900	12800	6600	110500	3600	4100
Women	78700	14800	100	1800	13000	7000	3200	3700	2600	3600	2100	46000	1600	1000
Environmental scientists	87200	38100	7700	21100	9300	19000	7600	11400	5400	7000	8900	5600	1300	1800
Men	74800	30900	6600	16600	7700	17800	7000	10800	4300	6400	8200	4500	1100	1600
Women	12400	7200	1200	4500	1500	1200	600	600	1000	700	700	1000	300	300
Earth scientists	73600	31600	4500	18400	8700	16800	6700	10100	4900	6600	7400	3500	1100	1600
Men	62500	25200	3700	14200	7300	15700	6100	9600	3900	6100	6800	2700	900	1300
Women	11100	6400	800	4200	1400	1100	600	600	1000	600	600	800	300	300
Oceanographers	3400	2300	1200	900	300	500	300	200	100	(1)	200	100	(1)	100
Men	2900	2000	1000	800	100	500	300	200	100	(1)	200	100	(1)	100
Women	400	400	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Atmospheric scientists	10300	4200	2100	1800	300	1700	600	1000	400	400	1200	2000	200	200
Men	9400	3800	1800	1600	300	1600	600	1000	400	300	1200	1700	200	200
Women	900	500	200	200	(1)	(1)	(1)	(1)	(1)	100	(1)	200	(1)	(1)
Life scientists	337100	116000	50600	51300	14100	89500	24400	65000	47000	10400	36300	9800	21800	6500
Men	268500	87800	36500	40700	10600	79500	22000	57500	36100	9400	29400	6700	14500	5200
Women	68600	28200	14100	10600	3500	10000	2400	7600	11000	1000	6900	3100	7300	1200
Biological scientists	233800	81600	40900	32000	8700	64300	17000	47400	33800	8000	21100	7700	13200	4100
Men	184200	60400	29300	24400	6700	56900	14900	41900	24800	7400	17600	5100	8900	3100
Women	49600	21100	11500	7600	2000	7500	2000	5400	9000	600	3500	2600	4300	1000
Agricultural scientists	73800	22700	3100	15100	4500	19700	5400	14300	5800	2200	14500	1700	5200	2000
Men	61800	18800	2300	13100	3400	18000	5100	12900	5100	1900	11400	1400	3400	1800
Women	12000	3900	800	2000	1100	1700	300	1400	700	300	3100	300	1800	200

See footnotes at end of table.

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Table B-6. Employed scientists and engineers by field, sex, and primary work activity: 1982-Continued

Field and sex	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Medical scientists	29500	11700	6600	4200	800	5400	2000	3300	7400	200	700	400	3300	400
Men	22500	8600	4900	3100	600	4600	2000	2600	6100	200	400	200	2100	300
Women	7000	3100	1700	1100	300	800	100	700	1300	100	400	200	1200	100
Psychologists	138400	10900	4100	4600	2300	28600	5400	23200	28100	7300	6000	3400	49500	4700
Men	83000	6600	2400	2800	1300	19000	3800	15200	17900	4800	3800	1500	27100	2400
Women	55400	4400	1700	1800	900	9600	1600	8000	10200	2500	2200	1900	22300	2300
Social scientists	237200	34100	7600	21100	5400	76300	16200	60100	47700	8000	10500	27500	27400	5700
Men	169300	24400	5400	14600	4400	59000	11800	47200	33300	5800	8500	16300	17600	4400
Women	67900	9700	2200	6600	1000	17300	4400	12900	14400	2200	2000	11100	9800	1300
Economists	103100	17100	2500	12300	2300	32500	6700	25800	16000	5300	3800	17600	8300	2500
Men	84600	13600	2000	9600	2000	28700	6200	22500	14000	4200	3600	11500	6800	2200
Women	18400	3600	500	2700	300	3800	400	3300	2000	1100	200	6100	1400	200
Sociologists/anthropologists	57000	9800	3700	4900	1200	15900	3100	12700	14500	900	2700	4200	7500	1600
Men	32700	5300	2100	2500	600	9600	1600	8000	8100	800	1600	1900	4300	1200
Women	24200	4500	1500	2400	500	6300	1500	4800	6400	100	1100	2300	3200	500
Other social scientists	77200	7200	1400	3900	1900	27900	6400	21500	17200	1800	4100	5700	11600	1600
Men	52000	5500	1300	2500	1800	20700	4000	16700	11200	800	3300	2900	6400	1000
Women	25200	1700	100	1400	100	7200	2400	4800	6000	1000	700	2800	5200	600
Total engineers	1847200	631400	9100	65700	556500	510700	164000	346700	30100	105900	319900	76300	68500	104500
Men	1788900	609700	8800	62700	538200	502400	161400	340900	28000	103100	308400	69800	65800	101800
Women	58300	21700	300	3000	18300	8300	2500	5800	2100	2700	11500	6600	2700	2700
Aeronautical/astronautical	80800	37600	800	6500	30300	23600	15300	8400	1200	900	8000	4500	1100	4100
Men	78700	36500	700	6200	29600	23400	15100	8300	1100	800	7500	4300	1000	4000
Women	2100	1100	100	300	700	200	100	100	100	(1)	500	200	(1)	(1)
Chemical	107700	43700	400	5300	38000	32000	10400	21600	1400	2600	18500	3100	2200	4300
Men	101600	40600	400	4900	35300	31500	10300	21200	1300	2400	17000	2700	1900	4100
Women	6100	3100	(1)	400	2700	500	100	400	100	100	1500	400	200	200

See footnotes at end of table.

Table B-6. Employed scientists and engineers by field, sex, and primary work activity: 1982-Continued

Field and sex	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Civil	258200	48300	500	4500	43400	84500	9400	75100	3500	39900	52600	10700	4000	14800
Men	252200	46300	400	4300	41600	83400	9300	74000	3300	39200	51500	10100	3900	14400
Women	6100	2000	100	100	1800	1100	100	1100	200	700	1000	600	100	300
Electrical/electronics	437700	191700	3000	17800	171000	113300	53600	59800	7500	15000	64400	15200	7400	23200
Men	428600	187500	2900	17200	167400	112100	53000	59100	7100	14800	62900	14400	7100	22800
Women	9100	4200	(1)	600	3600	1200	500	700	400	200	1500	800	400	400
Industrial	113100	23800	100	900	22900	35400	4900	30500	1900	3600	30400	8500	2900	6600
Men	108600	22700	100	800	21800	34500	4800	29700	1900	3500	29300	7700	2700	6400
Women	4500	1200	(1)	100	1100	900	200	700	(1)	200	1100	800	100	200
Materials	39200	14400	700	3800	10000	10900	5300	5600	800	1600	8500	700	600	1600
Men	37500	13600	700	3600	9300	10700	5200	5600	800	1600	8000	600	600	1600
Women	1700	900	(1)	200	700	200	200	(1)	(1)	(1)	500	(1)	(1)	100
Mechanical	357900	157800	1400	10800	145500	100100	33400	66700	6100	13100	50400	7100	5900	17600
Men	350700	154300	1400	10500	142500	99100	33000	66100	5600	12900	49100	6700	5700	17200
Women	7100	3400	(1)	300	3100	1000	300	600	400	200	1200	400	200	300
Mining	14200	3400	200	1000	2200	3600	900	2700	300	1500	3500	1300	200	300
Men	13700	3200	200	1000	2100	3600	900	2700	300	1400	3400	1200	200	300
Women	500	100	(1)	100	100	(1)	(1)	(1)	(1)	100	100	100	(1)	(1)
Nuclear	18200	5400	200	1200	4000	6200	1900	4200	200	900	3200	1000	300	1100
Men	17900	5300	200	1100	4000	6100	1900	4200	200	800	3200	800	300	1100
Women	400	100	(1)	(1)	100	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)

See footnotes at end of table.

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Table B-6. Employed scientists and engineers by field, sex, and primary work activity: 1982-Continued

Field and sex	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Petroleum	27700	5600	300	1100	4200	6800	1400	5400	300	2400	7900	1200	1100	2400
Men	26300	5000	300	1000	3800	6600	1400	5200	300	2400	7600	1000	1000	2400
Women	1400	600	(1)	100	500	200	(1)	200	(1)	(1)	300	200	100	(1)
Other engineers	392500	99600	1700	12900	85000	94300	27500	66800	6900	24500	72500	23100	42900	28700
Men	373200	94600	1600	12100	81000	91400	26500	64800	6100	23300	68900	20100	41400	27500
Women	19300	5000	100	900	4000	2900	1000	2000	800	1200	3700	3100	1500	1200

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Total, all fields	3253000	1001700	106600	218700	676400	838200	272000	566200	224300	159500	418500	297400	178600	134700
Business and industry	2186400	719900	15100	109900	594900	609200	199600	409600	10800	140700	325000	210500	121300	49100
Educational institutions	391800	106900	63000	36300	7600	39800	13300	26500	200300	3200	6300	12200	18600	4500
Non-profit organizations	109800	29500	8700	12400	8500	26800	10100	16700	6400	3800	7500	10200	23400	2300
Federal gov't	284400	100300	15700	42800	41800	91000	35900	55100	2000	5200	38900	38500	3600	4800
Military	16900	3000	500	1200	1400	6900	1600	5300	500	200	3300	1300	1500	300
State/local gov't	168500	32900	2600	12200	18100	58200	9500	48700	2800	4600	34700	21200	8500	5500
Other gov't	8800	2800	300	1500	1000	2100	900	1200	200	500	700	1700	200	500
Other	7800	2800	100	1400	1400	1200	500	600	500	600	1100	1000	700	(1)
No report	78500	3500	700	1100	1700	3000	600	2400	700	700	1200	800	800	67700
Total scientists	1405700	370400	97500	153000	119900	327500	108000	219500	194200	53600	98600	221100	110200	30100
Business and industry	712300	176500	10400	69200	97000	204000	67600	136400	5500	41500	64800	151400	57600	10900
Educational institutions	341100	92400	60500	29100	2800	32100	10500	21600	177300	2800	3800	11600	13100	3000
Non-profit organizations	85600	20000	8400	8600	3000	18900	6000	12800	6200	2800	4400	8700	23000	1600
Federal gov't	152900	57800	14400	32100	11300	41500	15800	25700	1100	2800	14500	30300	2700	2100
Military	5500	900	300	500	200	2000	200	1800	200	100	600	900	600	100
State/local gov't	83100	17100	2500	10200	4300	25600	6600	19000	2700	2700	10000	15300	7400	2200
Other gov't	6400	2200	300	1400	600	1700	800	800	100	400	300	1500	(1)	200
Other	3300	1300	100	900	200	300	200	100	500	100	100	600	300	(1)
No report	15700	2000	700	1000	400	1500	300	1200	600	300	100	700	400	10100
Physical scientists	227400	101300	23100	43200	35000	53800	30000	23700	28500	3000	26000	5000	4500	5300
Business and industry	135800	66300	5600	29100	31600	40700	22200	18500	300	2300	18000	2600	3000	2700
Educational institutions	48400	15300	11600	3000	600	4200	2200	2100	27700	(1)	400	400	200	200
Non-profit organizations	8900	4400	2100	1600	700	1700	1300	400	100	500	1000	300	800	(1)
Federal gov't	24000	13300	3500	8000	1800	5900	4200	1700	100	200	3100	1200	(1)	200
Military	600	100	100	(1)	(1)	200	(1)	200	(1)	(1)	(1)	100	100	(1)
State/local gov't	6300	1100	100	900	200	700	100	600	(1)	(1)	3600	300	300	200
Other gov't	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	600	400	(1)	300	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	2600	400	(1)	200	200	100	(1)	100	200	(1)	(1)	(1)	(1)	1900

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Chemists	154100	65500	10300	28800	26300	37700	19200	18500	17000	1100	22800	3300	3300	3600
Business and industry	106100	50800	3400	22800	24600	31300	16100	15100	100	1100	16300	1800	2400	2300
Educational institutions	26900	7300	5300	1700	300	2600	1100	1400	16500	(1)	300	100	100	(1)
Non-profit organizations	3700	1300	500	600	200	800	500	300	(1)	(1)	800	300	400	(1)
Federal gov't	10300	4800	900	3100	800	2200	1300	1000	100	(1)	2200	800	(1)	100
Military	300	100	100	(1)	(1)	100	(1)	100	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	4900	700	100	500	200	500	(1)	500	(1)	(1)	3200	300	300	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	300	100	(1)	(1)	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	1600	400	(1)	200	200	(1)	(1)	(1)	200	(1)	(1)	(1)	(1)	1000
Physicists/astronomers	47600	22000	9700	7700	4500	11100	8100	3000	9600	700	1300	1000	900	1100
Business and industry	17200	7700	1300	2900	3600	7000	4800	2300	100	300	800	500	400	300
Educational institutions	17500	6500	5400	1000	200	1100	900	200	9400	(1)	(1)	200	100	100
Non-profit organizations	3500	2100	1300	600	200	600	500	100	100	300	100	100	300	(1)
Federal gov't	8200	5500	1800	3100	600	2100	1900	200	(1)	100	300	100	(1)	(1)
Military	200	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
State/local gov't	200	200	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	800	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	700
Other physical scientists	25600	13900	3000	6600	4200	5000	2700	2300	1900	1200	2000	800	300	600
Business and industry	12600	7800	1000	3500	3300	2400	1200	1200	100	900	900	300	200	100
Educational institutions	4000	1500	900	400	200	500	100	400	1800	(1)	(1)	(1)	(1)	100
Non-profit organizations	1800	1100	300	400	400	300	300	(1)	(1)	200	100	(1)	(1)	(1)
Federal gov't	5500	3000	800	1800	300	1500	1000	500	(1)	100	600	300	(1)	(1)
Military	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	100	(1)
State/local gov't	1200	200	(1)	200	(1)	200	100	100	(1)	(1)	400	100	100	200
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	300	300	(1)	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	200

See footnotes at end of table.

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity														
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Mathematical scientists	79400	12900	3300	5600	4000	17900	7600	10300	30100	1500	2200	13300	500	1100
Business and industry	26300	4600	100	2000	2500	13300	5200	8100	100	1100	1600	5100	400	200
Educational institutions	37300	3500	2800	800	(1)	1800	500	1300	29800	200	100	1500	100	200
Non-profit organizations	2100	300	(1)	200	100	600	500	100	(1)	100	(1)	1100	(1)	(1)
Federal gov't	10800	3700	300	2200	1300	1800	1200	600	200	100	500	4400	(1)	(1)
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	1600	200	(1)	200	(1)	300	200	100	(1)	(1)	(1)	1100	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	200	200	(1)	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
No report	1000	300	100	100	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	600
Mathematicians	62500	10500	3200	3700	3600	15900	6600	9200	27900	700	1800	4400	500	900
Business and industry	20700	3900	100	1600	2200	12000	4700	7400	(1)	700	1400	2200	400	200
Educational institutions	32900	2900	2700	200	(1)	1700	400	1300	27600	(1)	100	100	100	200
Non-profit organizations	1000	200	(1)	200	(1)	400	400	100	(1)	(1)	(1)	300	(1)	(1)
Federal gov't	6500	2900	300	1500	1200	1500	1000	500	200	(1)	300	1600	(1)	(1)
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	400	100	(1)	(1)	(1)	100	100	(1)	(1)	(1)	(1)	200	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	900	300	100	100	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	500
Statisticians	16900	2400	100	1900	400	2000	1000	1100	2200	800	400	8900	(1)	200
Business and industry	5600	700	(1)	400	300	1200	500	700	100	400	200	2900	(1)	100
Educational institutions	4400	600	(1)	600	(1)	100	100	(1)	2100	200	(1)	1400	(1)	(1)
Non-profit organizations	1100	100	(1)	(1)	(1)	200	100	100	(1)	100	(1)	700	(1)	(1)
Federal gov't	4300	800	(1)	700	100	300	200	100	(1)	100	200	2800	(1)	(1)
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	1200	100	(1)	100	(1)	100	100	100	(1)	(1)	(1)	900	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Computer specialists	299000	57000	1100	6000	49900	42500	16700	25800	7500	16400	8700	156500	5300	5100
Business and industry	237100	47300	300	4100	42900	33300	14400	18900	2000	15600	7100	124700	4800	2400
Educational institutions	16800	2300	600	700	1000	2300	400	1900	5300	200	200	6300	(1)	200
Non-profit organizations	8400	1600	(1)	400	1200	1300	400	900	(1)	(1)	300	5000	100	200
Federal gov't	20800	3700	200	600	2800	3300	1100	2200	200	300	900	12100	100	300
Military	1400	100	(1)	(1)	100	400	(1)	400	(1)	100	100	500	200	(1)
State/local gov't	10700	1600	(1)	100	1500	1600	300	1300	(1)	100	100	7000	100	100
Other gov't	300	100	(1)	(1)	100	100	100	(1)	(1)	(1)	(1)	100	(1)	(1)
Other	700	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	400	(1)	(1)
No report	2800	200	(1)	100	100	100	(1)	100	100	100	(1)	400	(1)	1900
Environmental scientists	87200	38100	7700	21100	9300	19000	7600	11400	5400	7000	8900	5600	1300	1800
Business and industry	54200	22900	1100	13500	8200	13800	5100	8700	200	6500	6100	3000	1000	800
Educational institutions	10800	4700	3300	1400	100	900	300	600	4900	(1)	100	100	100	(1)
Non-profit organizations	900	500	300	200	(1)	100	100	(1)	(1)	(1)	100	100	(1)	(1)
Federal gov't	14900	7600	2400	4400	800	2800	1600	1200	200	200	1800	1800	100	400
Military	1000	200	(1)	100	(1)	200	(1)	200	(1)	(1)	200	200	100	(1)
State/local gov't	4200	1900	300	1500	100	1100	500	600	(1)	200	600	300	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)
Other	200	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	1000	200	200	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	600
Earth scientists	73600	31600	4500	18400	8700	16800	6700	10100	4900	6600	7400	3500	1100	1600
Business and industry	50800	21500	900	12600	7900	13100	4800	8300	200	6200	5700	2400	900	800
Educational institutions	7800	2300	1500	800	100	800	300	500	4600	(1)	(1)	100	(1)	(1)
Non-profit organizations	400	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	9600	5500	1700	3300	600	2000	1100	800	100	100	1000	700	100	200
Military	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	3800	1800	300	1500	100	900	400	500	(1)	200	600	200	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	200	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	800	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	500

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Oceanographers	3400	2300	1200	900	300	500	300	200	100	(1)	200	100	(1)	100
Business and industry	600	400	(1)	300	200	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)
Educational institutions	1300	1100	900	200	(1)	100	(1)	100	100	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	200	200	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	1200	600	100	400	100	300	200	100	(1)	(1)	200	100	(1)	(1)
Military	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Atmospheric scientists	10300	4200	2100	1800	300	1700	600	1000	400	400	1200	2000	200	200
Business and industry	2900	900	200	600	100	600	300	400	(1)	300	300	600	100	(1)
Educational institutions	1700	1300	900	400	(1)	100	100	(1)	300	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	300	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
Federal gov't	4000	1500	600	700	200	600	300	300	100	100	600	1000	(1)	200
Military	800	100	(1)	100	(1)	200	(1)	200	(1)	(1)	200	200	100	(1)
State/local gov't	300	100	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	100	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Life scientists	337100	116000	50600	51300	14100	89500	24400	65000	47000	10400	36300	9800	21800	6500
Business and industry	110300	25300	2500	14500	8300	40700	11200	29500	400	6500	20400	3100	12000	1800
Educational institutions	109800	50000	33800	15500	700	8900	3100	5700	44700	900	1700	800	1800	1000
Non-profit organizations	21200	8900	5300	3100	600	4600	1100	3500	800	200	1200	300	4800	300
Federal gov't	57100	21400	6700	11600	3100	20800	4600	16200	400	1400	7700	3400	900	1000
Military	800	400	200	200	(1)	300	200	100	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	33400	8700	1800	5500	1300	13600	4000	9600	600	1100	5000	2000	1900	600
Other gov't	500	300	(1)	200	100	100	100	(1)	(1)	(1)	100	100	(1)	(1)
Other	700	300	(1)	300	(1)	100	(1)	100	(1)	100	100	(1)	100	(1)
No report	3200	700	300	300	(1)	400	200	200	100	100	100	100	200	1700

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Biological scientists	233800	81600	40900	32000	8700	64300	17000	47400	33800	8000	21100	7700	13200	4100
Business and industry	71600	17500	2300	10700	4600	27600	8200	19300	400	5100	9400	2700	7700	1200
Educational institutions	75300	33800	27100	6500	300	5200	1800	3400	32400	400	1000	700	1000	900
Non-profit organizations	14200	7100	4300	2300	500	3000	700	2300	400	100	800	200	2400	200
Federal gov't	45800	16100	5500	8100	2500	18500	3800	14700	(1)	1100	6100	2800	600	500
Military	500	200	(1)	100	(1)	200	100	100	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	23800	6100	1500	3800	800	9500	2200	7300	600	1100	3700	1100	1300	300
Other gov't	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	500	300	(1)	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
No report	2000	400	200	200	(1)	300	100	200	(1)	100	(1)	100	100	1000
Agricultural scientists	73800	22700	3100	15100	4500	19700	5400	14300	5800	2200	14500	1700	5200	2000
Business and industry	33800	6300	200	3000	3100	10800	2000	8800	(1)	1400	10600	200	3800	700
Educational institutions	18700	9300	1900	7000	400	2500	1000	1500	5400	400	700	100	400	100
Non-profit organizations	2300	300	100	200	100	700	200	500	100	100	400	100	700	100
Federal gov't	9200	4300	700	3100	500	1900	500	1400	300	300	1400	500	100	500
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	8600	2300	300	1600	400	3700	1600	2100	(1)	(1)	1200	800	200	300
Other gov't	300	200	(1)	100	100	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
Other	300	(1)	(1)	(1)	(1)	100	(1)	100	(1)	100	100	(1)	(1)	(1)
No report	700	200	(1)	100	(1)	100	100	(1)	(1)	(1)	100	(1)	(1)	400
Medical scientists	29500	11700	6600	4200	800	5400	2000	3300	7400	200	700	400	3300	400
Business and industry	5000	1500	(1)	800	600	2400	1000	1400	(1)	(1)	400	200	500	(1)
Educational institutions	15800	6900	4900	2100	(1)	1200	300	900	7000	100	(1)	100	400	(1)
Non-profit organizations	4600	1600	900	600	100	900	200	800	300	(1)	(1)	(1)	1700	100
Federal gov't	2100	1100	600	500	(1)	400	300	100	100	(1)	200	100	200	(1)
Military	300	200	100	100	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	1100	300	(1)	100	100	300	200	200	(1)	(1)	100	(1)	400	(1)
Other gov't	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	500	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	300

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Psychologists	138400	10900	4100	4600	2300	28600	5400	23200	28100	7300	6000	3400	49500	4700
Business and industry	45300	2200	100	1100	1000	15400	2500	12900	1500	3400	3600	1300	16500	1400
Educational institutions	52200	5600	3400	1800	300	6100	1700	4500	21900	1400	1300	1000	14100	700
Non-profit organizations	26000	1200	100	800	300	3900	500	3400	3100	1700	700	500	14200	700
Federal gov't	3300	1200	300	600	200	800	400	400	(1)	400	(1)	100	800	(1)
Military	800	100	(1)	100	(1)	200	(1)	200	100	(1)	100	(1)	200	(1)
State/local gov't	8100	400	(1)	(1)	400	1900	300	1700	1000	300	200	500	3300	300
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	500	100	(1)	(1)	100	(1)	(1)	(1)	200	(1)	(1)	(1)	200	(1)
No report	2300	300	100	200	(1)	200	(1)	200	100	(1)	(1)	(1)	200	1500
Social scientists	237200	34100	7600	21100	5400	76300	16200	60100	47700	8000	10500	27500	27400	5700
Business and industry	103200	8000	600	4800	2500	46700	7000	39700	1100	6100	8100	11700	19900	1500
Educational institutions	65700	11000	5000	5900	100	7800	2300	5500	42900	100	(1)	1500	1800	500
Non-profit organizations	18100	3100	600	2400	100	6600	2100	4500	2100	300	1100	1500	3100	300
Federal gov't	22100	6900	900	4600	1400	6100	2800	3300	100	200	500	7200	800	200
Military	900	(1)	(1)	(1)	(1)	600	(1)	600	100	(1)	100	(1)	(1)	100
State/local gov't	18700	3200	300	2000	900	6500	1200	5200	1000	1000	400	4000	1700	900
Other gov't	5300	1700	200	1200	400	1400	700	700	100	400	200	1300	(1)	200
Other	400	100	(1)	100	(1)	(1)	(1)	(1)	200	(1)	(1)	200	(1)	(1)
No report	2900	(1)	(1)	(1)	(1)	600	(1)	500	200	(1)	(1)	100	(1)	2000
Economists	103100	17100	2500	12300	2300	32500	6700	25800	16000	5300	3800	17600	8300	2500
Business and industry	53300	4400	400	2900	1100	24200	3400	20800	400	4400	3200	8600	7400	700
Educational institutions	21800	4100	1300	2700	(1)	1900	400	1500	15300	(1)	(1)	200	300	100
Non-profit organizations	3100	1200	200	1000	(1)	900	500	400	(1)	100	(1)	800	100	(1)
Federal gov't	14800	4800	600	3500	700	3400	1500	2000	100	200	400	5400	500	100
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	3500	1100	(1)	1000	100	800	400	400	(1)	300	(1)	1300	(1)	100
Other gov't	4600	1400	(1)	1000	400	1200	500	700	(1)	400	200	1200	(1)	200
Other	300	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	200	(1)	(1)
No report	1600	(1)	(1)	(1)	(1)	100	(1)	(1)	200	(1)	(1)	(1)	(1)	1400

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rep./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Sociologists/anthropologists	57000	9800	3700	4900	1200	15900	3100	12700	14500	900	2700	4200	7500	1600
Business and industry	21300	2100	100	1300	700	9500	1300	8200	300	300	2200	1100	5200	600
Educational institutions	20300	4300	2700	1600	(1)	1900	1000	900	12900	(1)	(1)	500	400	200
Non-profit organizations	4700	1200	200	900	(1)	1100	400	600	900	200	300	500	500	100
Federal gov't	2400	800	200	500	100	800	200	600	(1)	(1)	(1)	600	100	(1)
Military	700	(1)	(1)	(1)	(1)	500	(1)	500	(1)	(1)	100	(1)	(1)	100
State/local gov't	6600	1000	200	500	300	1800	200	1600	200	300	(1)	1500	1300	500
Other gov't	300	300	200	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
No report	600	(1)	(1)	(1)	(1)	300	(1)	300	(1)	(1)	(1)	(1)	(1)	200
Other social scientists	77200	7200	1400	3900	1900	27900	6400	21500	17200	1800	4100	5700	11600	1600
Business and industry	28600	1400	100	700	700	13000	2300	10700	500	1400	2700	2000	7300	300
Educational institutions	23600	2600	1000	1600	(1)	4000	900	3200	14700	(1)	(1)	800	1100	300
Non-profit organizations	10300	700	200	500	100	4700	1200	3500	1200	(1)	800	200	2500	200
Federal gov't	4900	1200	(1)	600	600	1800	1100	700	(1)	(1)	200	1300	300	100
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
State/local gov't	8600	1200	100	600	600	3900	700	3200	700	400	300	1300	400	300
Other gov't	400	(1)	(1)	(1)	(1)	300	300	(1)	(1)	(1)	(1)	100	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	700	(1)	(1)	(1)	(1)	200	(1)	200	(1)	(1)	(1)	(1)	(1)	500
Total engineers	1847200	631400	9100	65700	556500	510700	164000	346700	30100	105900	319900	76300	68500	104500
Business and industry	1474200	543400	4700	40700	498000	405200	132000	273200	5300	99200	260100	59000	63700	38200
Educational institutions	50700	14500	2500	7200	4800	7700	2800	4900	23000	400	2500	600	500	1500
Non-profit organizations	24200	9500	300	3800	5500	7900	4000	3900	100	900	3100	1500	400	700
Federal gov't	131600	42500	1400	10700	30500	49500	20100	29400	900	2400	24400	8200	900	2700
Military	11500	2000	200	700	1200	4900	1400	3500	300	100	2700	400	900	200
State/local gov't	85400	15800	100	1900	13800	32600	2900	29700	100	1800	24700	5900	1100	3300
Other gov't	2400	600	(1)	200	400	500	100	400	100	200	300	200	200	400
Other	4600	1500	(1)	400	1100	900	400	500	(1)	400	1000	400	400	(1)
No report	62800	1500	(1)	200	1300	1500	300	1200	100	400	1200	200	400	57600

See footnotes at end of table.

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld research	Development	Total	of R&D	Other than R&D						
Aeronautical/astronautical	80800	37600	800	6500	30300	23600	15300	8400	1200	900	8000	4500	1100	4100
Business and industry	59800	30400	400	3400	26500	17200	11200	6000	200	900	5900	3400	600	1300
Educational institutions	2300	900	(1)	600	200	400	200	200	800	(1)	(1)	(1)	(1)	200
Non-profit organizations	1000	600	100	200	300	300	300	(1)	(1)	(1)	(1)	100	(1)	(1)
Federal gov't	13300	5200	300	2200	2800	5000	3000	2000	(1)	(1)	1800	800	100	300
Military	1500	300	100	100	200	400	300	100	100	(1)	300	(1)	300	(1)
State/local gov't	400	200	(1)	(1)	200	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	100	(1)	(1)
No report	2400	100	(1)	(1)	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	2200
Chemical	107700	43700	400	5300	38000	32000	10400	21600	1400	2600	18500	3100	2200	4300
Business and industry	97200	40300	300	3600	36500	29400	9000	20500	(1)	2400	18100	2900	2200	1800
Educational institutions	2900	1100	100	700	300	200	(1)	200	1400	(1)	(1)	(1)	(1)	300
Non-profit organizations	1300	400	(1)	300	100	800	700	100	(1)	100	(1)	(1)	(1)	(1)
Federal gov't	2900	1700	(1)	700	900	800	500	300	(1)	100	200	100	(1)	100
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
State/local gov't	800	100	(1)	100	(1)	600	200	400	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	200	100	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	2300	(1)	(1)	(1)	(1)	200	(1)	200	(1)	(1)	(1)	100	(1)	2100
Civil	258200	48300	500	4500	43400	84500	9400	75100	3500	39900	52600	10700	4000	14800
Business and industry	157200	30900	400	1700	28800	48400	5900	42500	300	37500	28700	4400	3000	4100
Educational institutions	5700	1100	100	900	100	1000	400	600	2900	100	300	100	100	200
Non-profit organizations	1600	400	(1)	(1)	400	600	100	600	(1)	(1)	400	100	100	100
Federal gov't	24300	5000	(1)	800	4200	10500	1000	9500	100	700	5700	2000	100	300
Military	2300	300	(1)	100	200	1200	100	1100	100	(1)	500	(1)	100	(1)
State/local gov't	57100	10300	(1)	1000	9200	22200	1900	20300	(1)	1300	16600	3900	500	2300
Other gov't	500	100	(1)	(1)	100	100	(1)	100	(1)	100	100	(1)	(1)	100
Other	1000	100	(1)	(1)	100	300	100	200	(1)	300	200	100	100	(1)
No report	8500	200	(1)	(1)	200	100	(1)	100	100	(1)	200	100	100	7800

See footnotes at end of table.

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Electrical/electronics	437700	191700	3000	17800	171000	113300	53600	59800	7500	15000	64400	15200	7400	23200
Business and industry	354000	163400	1200	10900	151300	93000	44300	48700	1400	13700	54300	12700	7000	8500
Educational institutions	13300	4900	900	2000	2000	1900	500	1400	5500	100	600	100	100	200
Non-profit organizations	7500	3300	200	1200	1900	2600	1300	1300	(1)	200	900	100	100	100
Federal gov't	38900	16400	600	3300	12500	12300	6700	5500	400	700	6400	2000	100	600
Military	3400	600	100	100	500	1700	500	1200	(1)	(1)	700	100	200	(1)
State/local gov't	4700	1700	(1)	100	1600	1400	100	1400	(1)	100	1200	100	(1)	200
Other gov't	300	100	(1)	(1)	100	(1)	(1)	(1)	100	100	100	(1)	(1)	(1)
Other	1100	600	(1)	100	500	100	(1)	100	(1)	(1)	200	100	(1)	(1)
No report	14500	700	(1)	100	600	300	100	200	(1)	(1)	(1)	(1)	(1)	13500
Industrial	113100	23800	100	900	22900	35400	4900	30500	1900	3600	30400	8500	2900	6600
Business and industry	100200	23000	100	800	22100	32700	4400	28300	500	3200	28200	7600	2300	2800
Educational institutions	1900	(1)	(1)	(1)	(1)	100	(1)	100	1400	(1)	200	100	100	(1)
Non-profit organizations	1300	200	(1)	(1)	200	400	100	300	(1)	200	(1)	100	100	300
Federal gov't	4400	400	(1)	(1)	400	1800	300	1500	(1)	(1)	1300	500	300	100
Military	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	200	(1)	(1)	(1)
State/local gov't	1100	100	(1)	(1)	100	300	100	200	(1)	200	400	200	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
No report	3900	100	(1)	(1)	100	100	100	100	(1)	(1)	200	(1)	100	3300
Materials	39200	14400	700	3800	10000	10900	5300	5600	800	1600	8500	700	600	1600
Business and industry	33400	12100	100	2800	9100	9900	4500	5400	100	1400	7900	600	600	900
Educational institutions	2300	1000	400	400	200	300	200	100	800	100	100	(1)	(1)	(1)
Non-profit organizations	400	300	(1)	200	100	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
Federal gov't	2000	900	200	300	500	600	600	(1)	(1)	100	300	100	(1)	100
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	100	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	700	100	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	700

See footnotes at end of table.

Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Mechanical	357900	157800	1400	10800	145500	100100	33400	66700	6100	13100	50400	7100	5900	17600
Business and industry	310500	145300	800	7700	136900	88900	29100	59800	700	12500	44300	5900	5400	7500
Educational institutions	10100	2100	300	900	800	1400	300	1100	5200	100	700	200	100	400
Non-profit organizations	4000	1400	(1)	500	800	1600	700	900	(1)	100	800	100	100	100
Federal gov't	18100	7300	200	1300	5700	6400	3000	3500	100	300	3000	700	100	200
Military	1100	200	(1)	100	100	300	100	200	100	(1)	200	(1)	200	200
State/local gov't	3200	1000	(1)	100	800	1100	100	1000	(1)	100	800	200	(1)	100
Other gov't	100	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	800	500	(1)	100	400	100	100	100	(1)	(*)	200	(1)	(1)	(1)
No report	9900	100	(1)	100	(1)	300	100	200	(1)	(1)	400	(1)	(1)	9100
Mining	14200	3400	200	1000	2200	3600	900	2700	300	1500	3500	1300	200	300
Business and industry	12100	2700	100	600	2100	3400	900	2500	(1)	1300	3300	1000	200	200
Educational institutions	600	200	100	100	(1)	(1)	(1)	(1)	300	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
Federal gov't	600	200	(1)	100	(1)	100	(1)	100	(1)	100	100	200	(1)	(1)
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	400	200	(1)	100	(1)	100	(1)	(1)	(1)	(1)	200	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)
No report	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	100
Nuclear	18200	5400	200	1200	4000	6200	1900	4200	200	900	3200	1000	300	1100
Business and industry	12200	4200	100	600	3500	3700	1000	2700	200	900	2100	700	100	300
Educational institutions	500	200	(1)	(1)	100	300	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	500	200	(1)	200	100	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	3300	600	(1)	200	400	1600	600	1000	(1)	(1)	800	200	(1)	100
Military	700	100	100	100	(1)	300	(1)	300	(1)	(1)	200	(1)	(1)	(1)
State/local gov't	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	300	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	100	(1)
No report	700	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	700

See footnotes at end of table.

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Table B-7. Employed scientists and engineers by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Petroleum	27700	5600	300	1100	4200	6800	1400	5400	300	2400	7900	1200	1100	2400
Business and industry	24400	5400	300	1000	4100	6200	1000	5200	200	2200	7600	1000	800	1000
Educational institutions	200	100	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	100	(1)	(1)	(1)	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	800	(1)	(1)	(1)	(1)	400	300	100	(1)	(1)	200	100	(1)	100
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	300	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	100	100	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
No report	1600	100	(1)	(1)	100	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	1400
Other engineers	392500	99600	1700	12900	85000	94300	27500	66800	6900	24500	72500	23100	42900	28700
Business and industry	313100	85700	1000	7600	77100	72400	20800	51700	1700	23200	59900	18800	41500	9800
Educational institutions	10800	3000	700	1500	900	2000	900	1200	4500	(1)	600	200	100	300
Non-profit organizations	6400	2700	(1)	1200	1500	1300	600	700	100	300	800	900	100	100
Federal gov't	22900	4900	100	1700	3100	10100	4100	5900	300	500	4500	1500	300	700
Military	2200	400	(1)	300	100	900	300	600	(1)	100	600	200	(1)	(1)
State/local gov't	17000	2400	(1)	500	1900	6500	400	6100	100	200	5300	1300	500	800
Other gov't	1100	300	(1)	100	100	200	100	200	100	(1)	100	100	(1)	200
Other	900	100	(1)	100	100	400	200	100	(1)	(1)	300	100	100	(1)
No report	18100	200	(1)	(1)	200	400	100	400	(1)	200	400	(1)	200	16700

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-8. Employed scientists and engineers by field, sex, and age: 1982

Field and sex	Age												
	Total	24 and under	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and over	No report
Total, all fields	3253000	184700	477500	530600	516800	393000	321600	317000	287200	155600	38800	28700	1400
Men	2864000	124300	378600	454300	456700	359600	302600	300600	273600	149400	36600	26500	1300
Women	388900	60400	98900	76300	60100	33400	19000	16400	13700	6200	2200	2200	200
Total scientists	1405700	108800	229000	253400	249400	173100	119400	113900	87200	47100	13900	9600	900
Men	1075100	59700	151800	187600	195500	142300	102300	99100	75200	41600	11800	7500	800
Women	330600	49100	77200	65800	53900	30800	17000	14800	12000	5600	2100	2100	100
Physical scientists	227400	9600	25700	29800	37400	33300	25700	25800	21900	13500	2500	2200	(1)
Men	205100	6300	20500	26200	34800	31200	24000	24200	21000	12600	2200	2100	(1)
Women	22300	3300	5100	3600	2600	2000	1700	1600	1000	900	300	200	(1)
Chemists	154100	7100	19000	18600	24400	21700	16400	17800	15500	10300	1700	1400	(1)
Men	136400	4500	15200	15900	22100	19900	15000	16400	14800	9800	1500	1300	(1)
Women	17700	2600	3800	2800	2300	1700	1500	1400	700	600	300	100	(1)
Physicists/astronomers	47600	1100	3800	6900	9000	7800	6500	5500	4300	1800	600	300	(1)
Men	45200	1000	3100	6400	8700	7700	6300	5400	4100	1400	500	300	(1)
Women	2500	200	600	400	300	100	200	100	200	400	(1)	(1)	(1)
Other physical scientists	25600	1400	2900	4300	4000	3800	2700	2400	2100	1400	200	500	(1)
Men	23500	900	2200	3900	4000	3600	2700	2300	2100	1400	200	500	(1)
Women	2100	500	700	400	100	200	100	100	(1)	(1)	(1)	(1)	(1)
Mathematical scientists	79400	1300	7900	13000	19200	13400	7700	6800	5900	2600	1300	300	(1)
Men	54000	800	3400	7900	12500	10100	5900	5700	4600	1900	900	200	(1)
Women	25300	500	4600	5100	6700	3300	1800	1100	1200	600	400	100	(1)
Mathematicians	62500	1000	4900	9100	15600	10700	6700	6300	5000	2100	900	200	(1)
Men	44600	600	2200	5700	10400	8500	5300	5300	4100	1600	700	100	(1)
Women	17900	400	2600	3400	5200	2200	1300	1000	1000	600	200	100	(1)
Statisticians	16900	300	3100	3900	3600	2700	1000	500	900	500	300	100	(1)
Men	9400	200	1200	2200	2100	1600	600	300	600	400	200	100	(1)
Women	7500	100	1900	1700	1500	1100	400	200	300	100	200	(1)	(1)
Computer specialists	299000	25600	62300	71100	61800	32600	21600	13400	6900	2300	200	900	300
Men	220300	16300	40200	51100	46800	26600	19000	11700	5600	1900	200	700	200
Women	78700	9300	22000	20000	15000	6000	2600	1700	1300	400	(1)	300	100

See footnotes at end of table.

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Table B-8. Employed scientists and engineers by field, sex, and age: 1982-Continued

Field and sex	Age												
	Total	24 and under	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and over	No report
Environmental scientists	87200	5100	16000	16000	11700	7400	8300	8700	8300	3900	1000	700	100
Men	74800	3400	11500	13200	10100	6800	8000	8500	7900	3700	900	700	100
Women	12400	1700	4400	2800	1600	600	300	200	300	200	100	100	(1)
Earth scientists	73600	4100	13900	13400	9100	5700	7100	8000	7200	3200	900	700	100
Men	62500	2500	9800	11000	7800	5100	6900	7800	6900	3000	800	700	100
Women	11100	1600	4100	2400	1300	600	300	200	300	200	100	100	(1)
Oceanographers	3400	100	300	600	1000	400	300	200	200	200	(1)	(1)	(1)
Men	2900	100	300	500	800	400	300	200	200	200	(1)	(1)	(1)
Women	400	(1)	(1)	100	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Atmospheric scientists	10300	900	1700	2000	1600	1300	900	500	800	500	100	(1)	(1)
Men	9400	900	1400	1700	1500	1300	800	500	800	500	100	(1)	(1)
Women	900	(1)	300	300	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Life scientists	337100	26300	60600	59400	53500	37700	26700	29500	23700	12800	4200	2600	100
Men	268500	14000	41100	47000	45500	31700	23700	26600	21000	11800	3700	2100	100
Women	68600	12300	19500	12300	8000	6000	3000	2900	2700	1100	400	500	(1)
Biological scientists	233800	16700	42100	47000	40100	25700	18100	18300	14400	7500	2200	1700	(1)
Men	184200	8900	28600	37400	33400	21500	15800	16200	12400	6700	1900	1400	(1)
Women	49600	7900	13500	9600	6600	4100	2300	2000	2000	900	300	200	(1)
Agricultural scientists	73800	9600	16900	9100	8600	7500	5000	7700	5300	2800	800	300	100
Men	61800	5200	11600	7800	8300	7100	4900	7500	5300	2800	800	300	100
Women	12000	4400	5300	1300	400	400	(1)	200	(1)	(1)	(1)	(1)	(1)
Medical scientists	29500	(1)	1600	3300	4800	4500	3600	3500	4000	2400	1100	600	(1)
Men	22500	(1)	900	1900	3800	3100	3000	2800	3300	2300	1000	400	(1)
Women	7000	(1)	700	1400	1000	1500	600	700	700	200	100	300	(1)
Psychologists	138400	11100	17100	26600	25600	17700	12500	13600	7800	4500	1200	900	100
Men	83000	2200	9100	16100	17200	11500	8100	9400	5200	2900	800	400	100
Women	55400	8900	8000	10500	8400	6200	4400	4200	2600	1600	400	400	(1)
Social scientists	237200	29800	39500	37500	40300	31000	16900	16200	12700	7600	3500	2000	200
Men	169300	16500	25900	26100	28600	24300	13600	13100	9800	6800	3000	1400	200
Women	67900	13300	13600	11500	11700	6700	3300	3100	2900	800	500	600	(1)
Economists	103100	11700	17100	15000	17500	12900	8100	7800	6100	4200	1900	800	(1)
Men	84600	8600	11900	11200	15100	11800	7300	7100	5500	3800	1700	600	(1)
Women	18400	3100	5200	3900	2300	1100	700	700	700	400	200	100	(1)

See footnotes at end of table.

Table B-8. Employed scientists and engineers by field, sex, and age: 1982-Continued

Field and sex	Age												
	Total	24 and under	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and over	No report
Sociologists/anthropologists	57000	8400	9300	9800	11100	8000	2800	3100	2800	700	500	400	(1)
Men	32700	3300	5500	5900	5500	5600	1700	2300	1700	600	300	200	(1)
Women	24200	5200	3800	3900	5700	2400	1100	700	1100	100	200	200	(1)
Other social scientists	77200	9600	13100	12800	11700	10100	6000	5300	3700	2700	1100	800	200
Men	52000	4600	8500	9000	7900	6900	4600	3600	2600	2400	1000	600	200
Women	25200	5000	4600	3800	3700	3200	1400	1700	1100	300	100	300	(1)
Total engineers	1847200	75900	248500	277200	267400	219900	202200	203100	200000	108500	24900	19200	500
Men	1788900	64600	226800	266700	261300	217300	200300	201500	198300	107800	24800	19000	500
Women	58300	11200	21700	10500	6100	2600	1900	1600	1600	600	100	200	(1)
Aeronautical/astronautical	80800	2200	6800	6600	8400	8800	13400	13300	12600	7200	1100	500	(1)
Men	78700	1800	6200	6300	8200	8800	13200	13100	12500	7100	1100	500	(1)
Women	2100	400	700	300	200	100	200	200	200	(1)	(1)	(1)	(1)
Chemical	107700	8000	18400	15400	13800	12900	9400	10300	10100	7400	1300	800	100
Men	101600	6100	16100	14300	13400	12800	9200	10100	10000	7400	1300	800	100
Women	6100	1900	2200	1000	400	100	100	200	(1)	(1)	(1)	(1)	(1)
Civil	258200	9700	35200	41200	38400	28900	28000	26400	27500	13500	4700	4500	100
Men	252200	8600	32500	40500	37900	28600	27800	26200	27400	13400	4700	4500	100
Women	6100	1200	2700	700	500	300	200	200	100	100	(1)	(1)	(1)
Electrical/electronics	437700	19900	61500	66300	66200	55300	48600	50800	43200	19000	3300	3400	100
Men	428600	17800	58200	64900	65100	54900	48300	50600	43000	18900	3300	3400	100
Women	9100	2100	3100	1400	1100	500	300	200	200	100	(1)	(1)	(1)
Industrial	113100	2600	15300	18100	18900	14500	13100	11700	10900	6100	800	1000	100
Men	108600	1800	13500	17200	18300	14300	13100	11700	10800	6100	800	900	100
Women	4500	800	1700	900	500	300	100	(1)	100	(1)	(1)	(1)	(1)
Materials	39200	1400	5200	5200	6000	5000	3900	4100	4800	3000	600	(1)	(1)
Men	37500	1000	4500	5100	5900	4900	3800	4100	4800	2900	600	(1)	(1)
Women	1700	500	700	100	100	100	100	(1)	(1)	100	(1)	(1)	(1)

See footnotes at end of table.

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Table B-8. Employed scientists and engineers by field, sex, and age: 1982-Continued

Field and sex	Age												
	Total	24 and under	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and over	No report
Mechanical	357900	15900	43500	48800	47300	43200	39500	37800	44500	27300	6200	3800	(1)
Men	350700	14100	40900	48100	46600	42900	39200	37600	44000	27200	6100	3800	(1)
Women	7100	1800	2500	700	700	300	300	200	500	100	100	(1)	(1)
Mining	14200	800	3600	2400	1600	800	600	1100	1400	1100	300	300	(1)
Men	13700	700	3400	2300	1600	800	600	1100	1400	1100	300	300	(1)
Women	500	100	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Nuclear	18200	1500	2800	3300	3700	2400	1600	1400	900	500	100	(1)	100
Men	17900	1400	2600	3300	3600	2400	1600	1400	900	500	100	(1)	100
Women	400	100	200	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Petroleum	27700	2800	6400	3400	2200	1600	2400	3300	2900	2000	300	300	(1)
Men	26300	2500	5700	3300	2100	1600	2400	3300	2900	1900	300	300	(1)
Women	1400	300	700	100	100	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
Other engineers	392500	11000	50100	66400	60900	46400	41600	42800	41000	21400	6200	4600	(1)
Men	373200	8900	43200	61400	58600	45600	40900	42200	40500	21200	6100	4500	(1)
Women	19300	2100	6900	5000	2300	900	700	700	500	200	(1)	100	(1)

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-9. Employed scientists and engineers by field, sex, and highest degree: 1982

	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Total, all fields	3253000	350000	854700	1705700	342500
Men	2864000	305200	722400	1503900	332500
Women	388900	44800	132200	201800	10100
Total scientists	1405700	290600	467700	632200	15200
Men	1075100	247100	347500	467900	12700
Women	330600	43600	120200	164300	2600
Physical scientists	227400	64600	71300	90400	1000
Men	205100	60200	65800	78300	800
Women	22300	4400	5500	12200	200
Chemists	154100	42700	36700	73900	700
Men	136400	39200	32900	63600	600
Women	17700	3500	3800	10200	100
Physicists/astronomers	47600	21900	17100	8500	200
Men	45200	20900	16200	7800	200
Women	2500	900	900	600	(1)
Other physical scientists	25600	(2)	17500	8100	(1)
Men	23500	(2)	16700	6800	(1)
Women	2100	(2)	800	1300	(1)
Mathematical scientists	79400	16100	42100	20000	1100
Men	54000	14700	25600	13200	500
Women	25300	1400	16500	6800	600
Mathematicians	62500	14300	30800	16300	1000
Men	44600	13100	19400	11600	500
Women	17900	1200	11400	4700	500
Statisticians	16900	1800	11300	3600	200
Men	9400	1600	6200	1600	100
Women	7500	300	5100	2000	100
Computer specialists	299000	9100	83000	204600	2300
Men	220300	8400	64700	145200	2000
Women	78700	600	18300	59400	300

See footnotes at end of table.

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Table B-9. Employed scientists and engineers by field, sex, and highest degree: 1982-Continued

	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Environmental scientists	87200	16500	28000	42100	600
Men	74800	15500	23800	35000	600
Women	12400	1000	4200	7100	(1)
Earth scientists	73600	12600	23600	36800	600
Men	62500	11900	19800	30200	600
Women	11100	700	3800	6500	(1)
Oceanographers	3400	1900	400	1000	(1)
Men	2900	1700	400	700	(1)
Women	400	200	(1)	200	(1)
Atmospheric scientists	10300	2000	3900	4400	(1)
Men	9400	1800	3600	4000	(1)
Women	900	100	400	400	(1)
Life scientists	337100	84700	100500	145600	6400
Men	268500	70600	80000	112400	5400
Women	68600	14100	20400	33200	900
Biological scientists	233300	51200	78600	101800	2200
Men	184200	41600	61400	79300	1900
Women	49600	9500	17200	22500	300
Agricultural scientists	73800	16300	16400	40100	1000
Men	61800	15700	14300	30800	1000
Women	12000	600	2100	9300	(1)
Medical scientists	29500	17200	5500	3600	3200
Men	22500	13200	4400	2200	2600
Women	7000	4000	1100	1300	600
Psychologists	138400	45400	62600	29700	700
Men	83000	32600	34900	15200	300
Women	55400	12800	27600	14600	400
Social scientists	237200	54100	80200	99700	3200
Men	169300	45100	52700	68600	3000
Women	67900	9100	27600	31100	200
Economists	103100	14100	45200	42400	1500
Men	84600	12500	36900	33800	1400
Women	18400	1500	8200	8500	100

See footnotes at end of table.

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Table B-9. Employed scientists and engineers by field, sex, and highest degree: 1982-Continued

	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Sociologists/anthropologists	57000	10700	18800	27100	400
Men	32700	7600	10000	14800	300
Women	24200	3100	8800	12300	(1)
Other social scientists	77200	29400	16300	30300	1300
Men	52000	24900	5700	20000	1300
Women	25200	4500	10500	10300	(1)
Total engineers	1847200	59400	387000	1073600	327300
Men	1788900	58200	374900	1036100	319800
Women	58300	1200	12100	37500	7500
Aeronautical/astronautical	80800	2600	23700	39500	15000
Men	78700	2600	23100	38200	14800
Women	2100	(1)	600	1300	200
Chemical	107700	7700	26500	67500	6000
Men	101600	7600	25300	62900	5800
Women	6100	100	1200	4600	300
Civil	258200	5700	51700	165600	35200
Men	252200	5700	50600	161300	34600
Women	6100	(1)	1200	4300	600
Electrical/electronics	437700	10900	99100	254000	73800
Men	428600	10800	97300	247800	72700
Women	9100	100	1700	6200	1100
Industrial	113100	(2)	20500	66500	26100
Men	108600	(2)	19800	63600	25200
Women	4500	(2)	700	2900	800
Materials	39200	6600	7200	20600	4800
Men	37500	6400	6900	19500	4700
Women	1700	200	300	1200	100
Mechanical	357900	6000	71600	223200	57100
Men	350700	5800	69900	218900	56200
Women	7100	100	1800	4300	900

See footnotes at end of table.

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Table B-9. Employed scientists and engineers by field, sex, and highest degree: 1982-Continued

	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Mining	14200	(2)	2300	10800	1100
Men	13700	(2)	2200	10400	1100
Women	500	(2)	(1)	400	(1)
Nuclear	18200	2000	5800	8700	1700
Men	17900	2000	5600	8500	1700
Women	400	(1)	200	200	(1)
Petroleum	27700	(2)	4600	19700	3400
Men	26300	(2)	4500	18600	3200
Women	1400	(2)	100	1100	200
Other engineers	392500	17900	74000	197500	103100
Men	373200	17200	69700	186500	99700
Women	19300	600	4200	11000	3400

(1) Too few cases to estimate.
(2) Classified elsewhere.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-10. Employed scientists and engineers by field, race and highest degree: 1982

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Total, all fields	3253000	350000	854700	1705700	342500
White	2991900	314100	768300	1588600	320900
Black	71500	4300	21100	38500	7500
Asian	134600	24900	53300	48900	7500
Native American	15600	1800	2200	8900	2700
Other	39300	4800	9800	20800	3900
Total scientists	1405700	299600	467700	632200	15200
White	1294200	265800	429100	585200	14100
Black	40000	4200	14800	20500	500
Asian	48000	15400	18200	13900	500
Native American	6500	1300	1100	4000	100
Other	17000	3800	4600	8600	(1)
Physical scientists	227400	64600	71300	90400	1000
White	212700	58100	69000	84800	800
Black	3500	800	700	1900	100
Asian	8200	4600	900	2700	100
Native American	600	200	300	100	(1)
Other	2300	900	400	900	(1)
Chemists	154100	42700	36700	73900	700
White	143100	38100	35300	69000	600
Black	2900	500	700	1700	100
Asian	6400	3500	400	2400	100
Native American	500	100	300	100	(1)
Other	1200	600	(1)	600	(1)
Physicists/astronomers	47600	21900	17100	8500	200
White	45200	20000	17000	8000	200
Black	400	300	(1)	100	(1)
Asian	1200	1100	(1)	100	(1)
Native American	100	100	(1)	(1)	(1)
Other	700	400	100	200	(1)

See footnotes at end of table.

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Table B-10. Employed scientists and engineers by field, race and highest degree: 1982-Continued

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Other physical scientists	25600	(2)	17500	8100	(1)
White	24400	(2)	16600	7700	(1)
Black	200	(2)	100	100	(1)
Asian	600	(2)	400	200	(1)
Native American	(1)	(2)	(1)	(1)	(1)
Other	400	(2)	300	100	(1)
Mathematical scientists	79400	16100	42100	20000	1100
White	72300	14300	38800	18400	900
Black	3600	200	2000	1200	200
Asian	2700	1100	1300	300	(1)
Native American	100	(1)	(1)	100	(1)
Other	600	500	100	100	(1)
Mathematicians	62500	14300	30800	16300	1000
White	57100	12800	28300	15200	800
Black	2600	200	1400	900	100
Asian	2100	800	1100	200	(1)
Native American	100	(1)	(1)	100	(1)
Other	500	500	100	(1)	(1)
Statisticians	16900	1800	11300	3600	200
White	15300	1500	10500	3200	(1)
Black	1000	(1)	500	400	100
Asian	600	300	200	100	(1)
Native American	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)
Computer specialists	299000	9100	83000	204600	2300
White	272300	8000	73300	188800	2200
Black	8900	(1)	1800	7000	(1)
Asian	13100	900	6500	5600	100
Native American	1100	(1)	400	700	(1)
Other	3700	200	900	2500	(1)

See footnotes at and of table.

Table B-10. Employed scientists and engineers by field, race and highest degree: 1982-Continued

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Environmental scientists	87200	16500	28000	42100	600
White	80900	15800	24600	39900	500
Black	600	(1)	200	400	(1)
Asian	3600	300	2800	500	100
Native American	900	100	(1)	700	(1)
Other	1200	200	400	600	(1)
Earth scientists	73600	12600	23600	36800	600
White	68500	12100	21000	34900	500
Black	500	(1)	200	300	(1)
Asian	2900	200	2200	400	100
Native American	700	100	(1)	500	(1)
Other	900	100	200	600	(1)
Oceanographers	3400	1900	400	1000	(1)
White	2900	1900	300	800	(1)
Black	(1)	(1)	(1)	(1)	(1)
Asian	100	100	(1)	(1)	(1)
Native American	200	(1)	(1)	200	(1)
Other	200	(1)	100	(1)	(1)
Atmospheric scientists	10300	2000	3900	4400	(1)
White	9400	1900	3400	4200	(1)
Black	(1)	(1)	(1)	(1)	(1)
Asian	600	(1)	500	100	(1)
Native American	(1)	(1)	(1)	(1)	(1)
Other	100	100	(1)	100	(1)
Life scientists	337100	84700	100500	145600	6400
White	316900	76700	96800	137400	6000
Black	8000	1400	2900	3600	100
Asian	7800	5100	300	2200	300
Native American	1300	400	300	700	(1)
Other	3000	1100	200	1700	(1)

See footnotes at end of table.

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Table B-10. Employed scientists and engineers by field, race and highest degree: 1982-Continued

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Biological scientists	233800	51200	78600	101800	2200
White	219200	45600	75900	95600	2100
Black	6400	1100	2500	2800	(1)
Asian	5200	3600	(1)	1600	(1)
Native American	700	200	(1)	400	(1)
Other	2300	700	200	1500	(1)
Agricultural scientists	73800	16300	16400	40100	1000
White	70000	15200	15500	38400	900
Black	1300	200	300	700	100
Asian	1600	800	300	500	(1)
Native American	600	(1)	300	300	(1)
Other	400	100	(1)	200	(1)
Medical scientists	29500	17200	5500	3600	3200
White	27700	16000	5500	3300	2900
Black	400	200	(1)	200	100
Asian	1000	700	(1)	100	200
Native American	100	100	(1)	(1)	(1)
Other	300	300	(1)	(1)	(1)
Psychologists	138400	45400	62600	29700	700
White	130400	43000	60300	26400	700
Black	4500	900	1900	1700	(1)
Asian	1200	600	400	300	(1)
Native American	1000	300	(1)	700	(1)
Other	1300	600	(1)	600	(1)
Social scientists	237200	54100	80200	99700	3200
White	208700	49800	66200	89600	3100
Black	10900	1000	5300	4700	(1)
Asian	11300	2900	6100	2400	(1)
Native American	1500	300	100	1000	100
Other	4900	300	2600	2100	(1)

See footnotes at end of table.

Table B-10. Employed scientists and engineers by field, race and highest degree: 1982-Continued

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Economists	103100	14100	45200	42400	1500
White	91200	12600	37900	39300	1400
Black	2400	100	1000	1200	(1)
Asian	7200	1200	5000	900	(1)
Native American	900	100	(1)	700	100
Other	1400	(1)	1100	300	(1)
Sociologists/anthropologists	57000	10700	18800	27100	400
White	49300	10000	15600	23300	400
Black	4200	200	1400	2500	(1)
Asian	1700	500	800	400	(1)
Native American	400	(1)	100	300	(1)
Other	1400	(1)	800	600	(1)
Other social scientists	77200	29400	16300	30300	1300
White	68200	27200	12600	27100	1300
Black	4400	600	2800	1000	(1)
Asian	2400	1200	300	1000	(1)
Native American	100	100	(1)	(1)	(1)
Other	2100	300	600	1200	(1)
Total engineers	1847200	59400	387000	1073600	327300
White	1697700	48300	339200	1003400	306800
Black	31500	100	6300	18100	7000
Asian	86600	9500	35200	35000	7000
Native American	9100	500	1000	4900	2700
Other	22300	1000	5200	12200	3900
Aeronautical/astronautical	80800	2600	23700	39500	15000
White	76000	2200	21900	37800	14200
Black	1200	(1)	400	500	200
Asian	2600	400	1100	700	400
Native American	200	(1)	(1)	100	100
Other	900	(1)	300	400	200

See footnotes at end of table.

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Table B-10. Employed scientists and engineers by field, race and highest degree: 1982-Continued

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Chemical	107700	7700	26500	67500	6000
White	97700	6000	23100	62900	5700
Black	1000	(1)	100	800	100
Asian	7300	1600	2800	2800	200
Native American	200	(1)	(1)	200	(1)
Other	1500	200	510	700	(1)
Civil	258200	5700	51700	165600	35200
White	231100	4600	41800	152400	32200
Black	3700	(1)	700	2400	500
Asian	17700	1100	7600	7700	1300
Native American	1000	(1)	200	400	400
Other	4800	(1)	1400	2700	700
Electrical/electronics	437700	10900	99100	254000	73800
White	397200	8800	86600	233900	67900
Black	9700	(1)	1600	5800	2300
Asian	23800	1700	9800	10400	1900
Native American	2300	300	(1)	1400	700
Other	4700	200	1100	2400	1000
Industrial	113100	(2)	20500	66500	26100
White	106900	(2)	18100	63800	25000
Black	2200	(2)	400	1300	600
Asian	2700	(2)	1800	600	300
Native American	400	(2)	100	100	200
Other	900	(2)	100	700	100
Materials	39200	6600	7200	20600	4800
White	36100	5500	6300	19800	4400
Black	400	(1)	100	300	(1)
Asian	2400	1000	700	500	100
Native American	200	(1)	100	100	100
Other	200	100	(1)	(1)	100

See footnotes at end of table.

Table B-10. Employed scientists and engineers by field, race and highest degree: 1982-Continued

Field and race	Highest degree				
	Total	Doctorate	Masters	Bachelors	Other
Mechanical	357900	6000	71600	223200	57100
White	332800	4500	63800	210000	54400
Black	3800	(1)	700	2500	600
Asian	15600	1300	6000	7100	1100
Native American	1900	(1)	300	1400	200
Other	3900	200	800	2200	700
Mining	14200	(2)	2300	10800	1100
White	13500	(2)	2100	10500	900
Black	(1)	(2)	(1)	(1)	(1)
Asian	200	(2)	200	(1)	(1)
Native American	400	(2)	(1)	300	100
Other	(1)	(2)	(1)	(1)	(1)
Nuclear	18200	2000	5800	8700	1700
White	16700	1700	5600	7900	1600
Black	100	(1)	(1)	100	(1)
Asian	1100	400	200	500	100
Native American	(1)	(1)	(1)	(1)	(1)
Other	200	(1)	100	200	(1)
Petroleum	27700	(2)	4600	19700	3400
White	25900	(2)	4000	19000	2900
Black	300	(2)	(1)	200	100
Asian	500	(2)	400	(1)	100
Native American	500	(2)	(1)	300	200
Other	500	(2)	200	200	(1)
Other engineers	392500	17900	74000	197500	103100
White	363800	15000	66000	185400	97400
Black	9100	100	2300	4200	2500
Asian	12800	2200	4600	4500	1500
Native American	2000	200	300	800	600
Other	4700	300	700	2600	1100

(1) Too few cases to estimate.
(2) Classified elsewhere.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-11. Employed scientists and engineers by field, sex, and race: 1982

	Race					
	Total	White	Black	Asian	Native American	Other
Total, all fields	3253000	2991900	71500	134600	15600	39300
Men	2864000	2652200	48500	115700	13700	34000
Women	388900	339800	23000	18900	1900	5300
Total scientists	1405700	1294200	40000	48000	6500	17000
Men	1075100	1001400	22200	33600	4900	13000
Women	330600	292900	17800	14400	1600	4000
Physical scientists	227400	212700	3500	8200	600	2300
Men	205100	193000	2700	6600	600	2200
Women	22300	19800	800	1600	(1)	100
Chemists	154100	143100	2900	6400	500	1200
Men	136400	127800	2200	4800	500	1100
Women	17700	15300	700	1500	(1)	100
Physicists/astronomers	47600	45200	400	1200	100	700
Men	45200	42900	400	1100	100	700
Women	2500	.2400	(1)	100	(1)	(1)
Other physical scientists	25600	24400	200	600	(1)	400
Men	23500	22300	100	600	(1)	400
Women	2100	2100	(1)	(1)	(1)	(1)
Mathematical scientists	79400	72300	3600	2700	100	600
Men	54000	50600	900	2100	100	300
Women	25300	21800	2600	700	(1)	300
Mathematicians	62500	57100	2600	2100	100	500
Men	44600	41600	800	1700	100	300
Women	17900	15500	1700	400	(1)	200
Statisticians	16900	15300	1000	600	(1)	100
Men	9400	8900	100	300	(1)	(1)
Women	7500	6300	900	200	(1)	(1)
Computer specialists	299000	272300	8900	13100	1100	3700
Men	220300	204400	3900	8300	800	2900
Women	78700	67900	5000	4700	300	800

See footnotes at end of table.

Table B-11. Employed scientists and engineers by field, sex, and race: 1982-Continued

	Race					
	Total	White	Black	Asian	Native American	Other
Environmental scientists	87200	80900	600	3600	900	1200
Men	74800	68800	500	3500	800	1200
Women	12400	12100	100	100	(1)	(1)
Earth scientists	73600	68500	500	2900	700	900
Men	62500	57600	400	2900	700	900
Women	11100	10900	(1)	100	(1)	(1)
Oceanographers	3400	2900	(1)	100	200	200
Men	2900	2500	(1)	100	200	100
Women	400	400	(1)	(1)	(1)	(1)
Atmospheric scientists	10300	9400	(1)	600	(1)	100
Men	9400	8600	(1)	600	(1)	100
Women	900	800	(1)	(1)	(1)	(1)
Life scientists	337100	316900	8000	7800	1300	3000
Men	268500	253400	6700	5500	900	1900
Women	68600	63600	1300	2300	400	1100
Biological scientists	233800	219200	6400	5200	700	2300
Men	184200	173700	5400	3500	300	1300
Women	49600	45500	1000	1700	400	1000
Agricultural scientists	73800	70000	1300	1600	600	400
Men	61800	58600	1100	1300	600	300
Women	12000	11400	200	400	(1)	100
Medical scientists	29500	27700	400	1000	100	300
Men	22500	21100	300	700	100	300
Women	7000	6600	100	200	(1)	(1)
Psychologists	138400	130400	4500	1200	1000	1300
Men	83000	78800	2200	500	700	800
Women	55400	51600	2300	700	300	400
Social scientists	237200	208700	10900	11300	1500	4900
Men	169300	152500	5200	7100	900	3600
Women	67900	56100	5700	4200	600	1300
Economists	103100	91200	2400	7200	900	1400
Men	84600	76900	900	4900	700	1300
Women	18400	14300	1400	2300	300	100

See footnotes at end of table.

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Table B-11. Employed scientists and engineers by field, sex, and race: 1982-Continued

	Race					
	Total	White	Black	Asian	Native American	Other
Sociologists/anthropologists	57000	49300	4200	1700	400	1400
Men	32700	28400	2100	600	300	1300
Women	24200	20900	2100	1100	100	100
Other social scientists	77200	68200	4400	2400	100	2100
Men	52000	47300	2200	1600	(1)	900
Women	25200	20900	2200	800	100	1200
Total engineers	1847200	1697700	31500	86600	9100	22300
Men	1788900	1650800	26200	82100	8800	21000
Women	58300	46900	5200	4500	300	1300
Aeronautical/astronautical	80800	76000	1200	2600	200	900
Men	78700	74200	1000	2500	200	800
Women	2100	1800	100	100	(1)	100
Chemical	107700	97700	1000	7300	200	1500
Men	101600	92700	800	6700	200	1300
Women	6100	5000	300	600	(1)	200
Civil	258200	231100	3700	17700	1000	4800
Men	252200	226100	3400	17000	1000	4600
Women	6100	5000	300	700	(1)	200
Electrical/electronics	437700	397200	9700	23800	2300	4700
Men	428600	390400	8800	22800	2300	4300
Women	9100	6800	900	1000	(1)	300
Industrial	113100	106900	2200	2700	400	900
Men	108600	103200	1600	2600	400	900
Women	4500	3700	600	100	(1)	(1)
Materials	39200	36100	400	2400	200	200
Men	37500	34600	300	2200	200	200
Women	1700	1500	100	100	(1)	(1)

See footnotes at end of table.

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Table B-11. Employed scientists and engineers by field, sex, and race: 1982-Continued

	Race					
	Total	White	Black	Asian	Native American	Other
Mechanical	357900	332800	3800	15600	1900	3900
Men	350700	326600	3300	15100	1900	3700
Women	7100	6100	400	400	(1)	200
Mining	14200	13500	(1)	200	400	(1)
Men	13700	13000	(1)	200	400	(1)
Women	500	500	(1)	(1)	(1)	(1)
Nuclear	18200	16700	100	1100	(1)	200
Men	17900	16400	100	1100	(1)	200
Women	400	400	(1)	(1)	(1)	(1)
Petroleum	27700	25900	300	500	500	500
Men	26300	24700	200	500	400	500
Woman	1400	1100	(1)	(1)	100	(1)
Other engineers	392500	363800	9100	12800	2000	4700
Men	373200	348800	6500	11500	1900	4400
Women	19300	15000	2600	1300	100	300

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Total, all fields	2866600	969600	103000	211300	655300	702400	253600	448800	211000	146100	380000	235400	130700	91300
Business and industry	1899300	697000	14400	105400	577200	495400	184800	310600	8200	128900	291700	160600	81100	36500
Educational institutions	362700	102300	60400	34900	6900	32200	12300	19900	190800	2600	5200	10300	15800	3500
Non-profit organizations	98700	28700	8600	12000	8100	23300	9500	13900	5700	3600	6400	7800	21100	2000
Federal gov't	270200	98000	15500	41900	40600	86300	34800	51500	1800	4900	37600	34200	3000	4300
Military	13300	2900	500	1100	1300	4800	1300	3400	400	200	2800	1200	800	100
State/local gov't	157100	32200	2500	12100	17600	54700	8900	45800	2800	4200	33600	18200	7400	3900
Other gov't	8100	2700	300	1500	900	2000	900	1100	100	500	700	1500	100	500
Other	7500	2800	100	1300	1400	1000	500	500	500	600	1000	1000	700	(1)
No report	49800	3100	700	1000	1300	2700	600	2100	600	600	1000	600	800	40500
Total scientists	1147500	352000	94600	147200	110200	235400	96400	139000	183300	44800	78300	162400	71600	19700
Business and industry	516100	164900	10000	65800	89100	128800	58500	70300	3700	33900	47400	104500	25900	7100
Educational institutions	316800	88800	58200	28100	2500	25900	9600	16200	169200	2300	3000	9600	15500	2600
Non-profit organizations	75700	19300	8400	8200	2700	15900	5600	10300	5600	2700	3600	6400	20800	1400
Federal gov't	141500	56200	14200	31400	10600	37700	15200	22500	900	2600	13800	26300	2200	1800
Military	4100	900	300	500	200	1300	200	1200	200	100	300	800	300	100
State/local gov't	74000	16800	2400	10200	4200	22700	6100	16600	2700	2400	9700	12300	6300	1000
Other gov't	6000	2100	300	1400	500	1500	800	700	100	400	300	1400	(1)	100
Other	3100	1500	100	900	200	300	100	100	500	100	(1)	600	300	(1)
No report	10300	1700	700	900	200	1200	300	1000	500	200	100	500	400	5600
Physical scientists	210500	98000	22300	41700	34000	46900	29300	17600	27800	2700	24500	4800	2900	3000
Business and industry	124400	64200	5400	28100	30700	34900	21500	13400	100	2000	16800	2500	1800	2000
Educational institutions	46600	14500	11100	2800	600	4000	2200	1800	27200	(1)	400	200	200	100
Non-profit organizations	8100	4300	2100	1500	700	1400	1300	100	100	500	900	300	600	(1)
Federal gov't	23400	13200	3500	8000	1800	5600	4000	1600	(1)	200	2900	1200	(1)	200
Military	400	100	100	(1)	(1)	100	(1)	100	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	5900	1100	(1)	800	200	500	100	400	(1)	(1)	3500	300	300	100
Other gov't	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Physical scientists														
Other	600	400	(1)	300	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	1100	200	(1)	200	100	100	(1)	100	200	(1)	(1)	(1)	(1)	600
Chemists	142100	63000	9900	27700	25400	32300	18800	13600	16400	800	21700	3100	2500	2300
Business and industry	96900	49000	3400	21900	23800	26700	15800	10900	(1)	800	15200	1700	1800	1700
Educational institutions	25900	6900	5000	1600	300	2500	1100	1300	16200	(1)	300	(1)	(1)	(1)
Non-profit organizations	3400	1300	500	600	200	600	500	100	(1)	(1)	800	300	400	(1)
Federal gov't	10000	4800	900	3100	800	2100	1100	1000	(1)	(1)	2200	800	(1)	100
Military	200	100	100	(1)	(1)	100	(1)	100	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	4500	700	(1)	500	200	300	(1)	200	(1)	(1)	3100	300	300	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	300	100	(1)	(1)	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	800	200	(1)	200	100	(1)	(1)	(1)	200	(1)	(1)	(1)	(1)	400
Physicists/astronomers	44900	21700	9600	7600	4500	10000	7800	2200	9600	700	1100	900	300	600
Business and industry	15700	7700	1300	2900	3600	6100	4500	1600	100	300	700	500	(1)	300
Educational institutions	17200	6300	5200	1000	200	1100	900	200	9400	(1)	(1)	200	100	100
Non-profit organizations	3100	1900	1300	500	200	500	500	(1)	100	300	100	100	100	(1)
Federal gov't	8200	5500	1800	3100	600	2100	1900	200	(1)	100	300	100	(1)	(1)
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	200	200	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	300	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	200
Other physical scientists	23500	13300	2800	6400	4100	4500	2700	1800	1800	1200	1700	700	100	200
Business and industry	11800	7500	800	3400	3300	2100	1200	900	100	900	800	300	100	(1)
Educational institutions	3400	1200	800	200	200	400	100	300	1700	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	1700	1100	300	400	400	300	300	(1)	(1)	200	(1)	(1)	(1)	(1)
Federal gov't	5200	3000	800	1800	300	1400	1000	400	(1)	100	400	300	(1)	(1)
Military	100	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Other physical scientists														
State/local gov't	1100	200	(1)	200	(1)	200	100	100	(1)	(1)	400	100	100	100
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	300	300	(1)	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Mathematical scientists	68300	12200	3200	5500	3500	12700	6900	5700	28300	1200	800	12100	100	900
Business and industry	18600	4100	(1)	1900	2100	8800	4600	4100	100	800	300	4400	(1)	200
Educational institutions	34800	3500	2700	800	(1)	1300	400	900	28000	200	(1)	1500	100	200
Non-profit organizations	1800	300	(1)	200	(1)	500	500	100	(1)	100	(1)	900	(1)	(1)
Federal gov't	10500	3700	300	2200	1300	1600	1200	500	200	100	500	4300	(1)	(1)
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	1500	200	(1)	200	(1)	300	200	100	(1)	(1)	(1)	1000	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
No report	800	300	100	100	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	400
Mathematicians	52800	9900	3100	3600	3100	11000	6000	5000	26200	500	600	3900	100	800
Business and industry	13900	3400	(1)	1500	1800	7900	4200	3700	(1)	500	200	1800	(1)	100
Educational institutions	30400	2900	2700	200	(1)	1200	400	900	25900	(1)	(1)	100	100	200
Non-profit organizations	900	200	(1)	200	(1)	400	400	(1)	(1)	(1)	(1)	300	(1)	(1)
Federal gov't	6300	2900	300	1500	1200	1300	900	400	200	(1)	300	1600	(1)	(1)
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	300	(1)	(1)	(1)	(1)	100	100	(1)	(1)	(1)	(1)	100	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	800	300	100	100	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	400
Statisticians	15500	2300	100	1900	400	1700	900	700	2200	700	300	8300	(1)	100
Business and industry	4700	700	(1)	400	300	900	500	400	100	300	100	2600	(1)	(1)
Educational institutions	4300	600	(1)	600	(1)	100	100	(1)	2100	200	(1)	1400	(1)	(1)
Non-profit organizations	1000	100	(1)	(1)	(1)	200	100	100	(1)	100	(1)	600	(1)	(1)

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Statisticians														
Federal gov't	4200	800	(1)	700	100	300	200	100	(1)	100	200	2700	(1)	(1)
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	1100	100	(1)	100	(1)	100	100	100	(1)	(1)	(1)	800	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Computer specialists	216100	49900	1100	5500	43200	28900	13400	15500	5500	11600	6200	107600	2900	3600
Business and industry	170500	41600	300	3700	37600	22700	11400	11300	1200	11000	5000	84200	2800	2000
Educational institutions	13300	1900	600	600	700	1800	300	1500	4100	200	200	4900	(1)	200
Non-profit organizations	6100	1300	(1)	400	900	800	400	400	(1)	(1)	200	3500	100	200
Federal gov't	15100	3000	200	600	2200	2100	900	1200	100	200	600	8800	(1)	300
Military	1000	100	(1)	(1)	100	200	(1)	200	(1)	100	100	400	(1)	(1)
State/local gov't	7700	1500	(1)	100	1400	1000	300	800	(1)	100	(1)	5000	(1)	100
Other gov't	300	100	(1)	(1)	100	100	100	(1)	(1)	(1)	(1)	100	(1)	(1)
Other	700	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	400	(1)	(1)
No report	1500	100	(1)	100	(1)	100	(1)	100	100	(1)	(1)	300	(1)	900
Environmental scientists	82700	37200	7700	20500	9100	17400	7500	9800	5100	6800	8500	5400	800	1500
Business and industry	51400	22400	1100	13200	8000	12600	5100	7500	200	6300	5800	2900	700	700
Educational institutions	10300	4600	3200	1300	100	900	300	600	4700	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	800	500	300	200	(1)	100	100	(1)	(1)	(1)	100	100	(1)	(1)
Federal gov't	14500	7400	2400	4200	800	2700	1600	1100	200	200	1800	1800	(1)	400
Military	900	200	(1)	100	(1)	200	(1)	200	(1)	(1)	200	200	100	(1)
State/local gov't	4000	1900	300	1500	100	900	500	500	(1)	200	600	300	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	700	200	200	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	300
Earth scientists	69900	31000	4500	18000	8500	15500	6600	8900	4700	6400	7100	3400	700	1200
Business and industry	48200	21000	900	12400	7700	12000	4800	7200	200	6000	5400	2300	600	700

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Earth scientists														
Educational institutions	7500	2300	1400	800	100	800	300	500	4400	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	400	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	9400	5500	1700	3200	600	1900	1100	700	100	100	1000	700	(1)	200
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	3700	1800	300	1400	100	900	400	400	(1)	200	600	200	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	500	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	300
Oceanographers	3100	2200	1100	800	300	500	300	200	100	(1)	200	100	(1)	(1)
Business and industry	500	400	(1)	300	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Educational institutions	1200	1000	900	200	(1)	100	(1)	100	100	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	200	200	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	1100	500	100	300	100	300	200	100	(1)	(1)	200	100	(1)	(1)
Military	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Atmospheric scientists	9800	4100	2000	1800	300	1500	600	800	300	400	1200	1900	200	200
Business and industry	2700	900	200	600	100	500	300	300	(1)	300	300	600	100	(1)
Educational institutions	1600	1300	900	300	(1)	100	100	(1)	200	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	300	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
Federal gov't	4000	1500	600	700	200	600	300	300	100	100	600	1000	(1)	200
Military	700	100	(1)	100	(1)	200	(1)	200	(1)	(1)	200	100	(1)	(1)
State/local gov't	300	100	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	100	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Life scientists	298000	112300	49200	49500	13600	73200	22500	50700	45200	10000	31600	8100	12800	4900
Business and industry	82400	24200	2400	13900	7900	28400	9800	18600	300	6200	16400	1800	4100	1000
Educational institutions	104200	48100	32500	14900	700	7200	2900	4300	43000	900	1500	800	1600	1000
Non-profit organizations	20000	8900	5200	3100	600	4300	1100	3200	800	200	1100	200	4200	300
Federal gov't	54800	20900	6700	11200	3100	19700	4500	15200	400	1400	7600	3100	800	900
Military	600	400	200	200	(1)	100	100	(1)	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	32400	8700	1800	5500	1300	13100	3900	9200	600	1100	4900	1900	1800	400
Other gov't	500	200	(1)	200	(1)	100	100	(1)	(1)	(1)	100	100	(1)	(1)
Other	700	300	(1)	300	(1)	100	(1)	100	(1)	100	(1)	(1)	100	(1)
No report	2500	600	300	200	(1)	300	200	100	100	100	100	100	200	1100
Biological scientists	210100	79700	39800	31100	8700	54200	15700	38500	32900	7700	18900	6300	7000	3300
Business and industry	54400	17100	2200	10300	4600	20200	7300	12900	300	4900	7700	1600	1900	700
Educational institutions	71900	32700	26200	6200	300	3900	1700	2200	31600	400	900	700	900	900
Non-profit organizations	13700	7000	4300	2300	500	2900	700	2200	400	100	600	200	2200	200
Federal gov't	44300	15900	5400	7900	2500	17600	3700	13900	(1)	1100	6000	2500	500	500
Military	300	200	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
State/local gov't	23400	6100	1500	3800	800	9400	2200	7200	600	1100	3600	1100	1300	200
Other gov't	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	500	300	(1)	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
No report	1600	300	200	100	(1)	200	100	100	(1)	100	(1)	100	100	800
Agricultural scientists	62300	22000	3100	14600	4200	14800	4900	9900	5600	2000	12200	1400	3000	1300
Business and industry	24500	6000	200	3000	2800	6500	1600	4900	(1)	1200	8500	100	1800	300
Educational institutions	17900	9000	1900	6700	400	2300	900	1400	5200	400	600	100	300	100
Non-profit organizations	2000	300	100	200	100	500	200	300	100	(1)	400	100	600	100
Federal gov't	8800	4100	700	2900	500	1800	500	1300	300	300	1400	500	100	400
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	8100	2300	300	1600	400	3500	1600	1900	(1)	(1)	1200	700	200	200
Other gov't	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity														
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Agricultural scientists														
Other	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	100	(1)	(1)	(1)	(1)
No report	500	200	(1)	100	(1)	100	100	(1)	(1)	(1)	100	(1)	(1)	200
Medical scientists	25700	10600	6200	3700	700	4200	1900	2300	6700	200	500	400	2800	300
Business and industry	3500	1100	(1)	600	500	1600	800	800	(1)	(1)	200	200	400	(1)
Educational institutions	14400	6500	4500	2000	(1)	1100	300	800	6300	100	(1)	100	400	(1)
Non-profit organizations	4300	1600	900	600	100	900	200	700	300	(1)	(1)	(1)	1400	100
Federal gov't	1800	900	500	400	(1)	300	300	(1)	100	(1)	200	100	200	(1)
Military	300	200	100	100	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	900	300	(1)	100	100	200	200	(1)	(1)	(1)	100	(1)	300	(1)
Other gov't	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	400	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	100
Psychologists	105600	10100	3700	4500	1900	15400	4200	11100	26400	6100	2500	2300	39900	2800
Business and industry	22300	1900	100	1100	700	4600	1500	3100	1100	3000	900	500	9700	600
Educational institutions	46900	5200	3100	1800	300	4700	1500	3100	21000	900	900	900	12700	600
Non-profit organizations	23600	1000	100	600	300	3500	500	3000	2900	1600	400	500	13100	500
Federal gov't	2800	1200	300	600	200	500	400	100	(1)	200	(1)	100	800	(1)
Military	600	100	(1)	100	(1)	100	(1)	100	100	(1)	(1)	(1)	200	(1)
State/local gov't	7300	400	(1)	(1)	400	1800	300	1500	1000	300	200	500	3000	100
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	500	100	(1)	(1)	100	(1)	(1)	(1)	200	(1)	(1)	(1)	200	(1)
No report	1600	300	100	200	(1)	200	(1)	200	(1)	(1)	(1)	(1)	200	900
Social scientists	166200	32300	7500	20000	4800	41000	12500	28500	45100	6500	4300	22000	12100	3000
Business and industry	46400	6600	600	3900	2100	16800	4600	12300	700	4700	2300	8100	6700	500
Educational institutions	60800	11000	5000	5900	100	6000	2000	4000	41100	100	(1)	1300	900	300
Non-profit organizations	15200	3000	600	2300	100	5300	1700	3600	1700	300	900	900	2800	300
Federal gov't	20500	6700	800	4600	1300	5400	2600	2800	100	200	500	7000	500	100
Military	700	(1)	(1)	(1)	(1)	600	(1)	600	100	(1)	(1)	(1)	(1)	100

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Social scientists														
State/local gov't	15200	3200	200	2000	900	5100	800	4200	1000	800	400	3300	1200	200
Other gov't	5100	1700	200	1200	300	1400	700	600	100	400	200	1200	(1)	100
Other	400	100	(1)	100	(1)	(1)	(1)	(1)	200	(1)	(1)	100	(1)	(1)
No report	2000	(1)	(1)	(1)	(1)	400	(1)	400	200	(1)	(1)	100	(1)	1400
Economists	75000	16600	2500	11900	2200	18000	5500	12600	15000	4400	1700	14700	2700	1800
Business and industry	28400	4000	400	2600	1000	10400	2500	7900	(1)	3500	1100	6300	2600	400
Educational institutions	20600	4100	1300	2700	(1)	1700	300	1400	14700	(1)	(1)	200	(1)	100
Non-profit organizations	2600	1200	200	1000	(1)	700	300	400	(1)	100	(1)	600	(1)	(1)
Federal gov't	14000	4800	600	3500	700	3300	1500	1800	100	200	400	5200	100	100
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	3400	1000	(1)	1000	100	800	400	400	(1)	300	(1)	1100	(1)	100
Other gov't	4500	1300	(1)	1000	300	1100	500	600	(1)	400	200	1100	(1)	100
Other	200	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
No report	1300	(1)	(1)	(1)	(1)	100	(1)	(1)	200	(1)	(1)	(1)	(1)	1100
Sociologists/anthropologists	37800	8700	3600	4300	800	7700	2600	5100	13600	600	600	2800	3400	400
Business and industry	6700	1200	100	700	400	3100	1100	2000	100	300	200	500	1300	(1)
Educational institutions	19100	4300	2700	1600	(1)	1400	900	500	12400	(1)	(1)	500	400	100
Non-profit organizations	3600	1100	200	800	(1)	700	300	400	700	200	300	100	500	100
Federal gov't	2000	800	200	500	100	500	200	400	(1)	(1)	(1)	600	100	(1)
Military	600	(1)	(1)	(1)	(1)	500	(1)	500	(1)	(1)	(1)	(1)	100	100
State/local gov't	4700	1000	200	500	300	1100	200	900	200	100	(1)	1200	1000	(1)
Other gov't	300	300	200	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
No report	600	(1)	(1)	(1)	(1)	300	(1)	300	(1)	(1)	(1)	(1)	(1)	200
Other social scientists	53500	7000	1300	3900	1800	15200	4400	10800	16400	1500	2100	4500	6000	700
Business and industry	11300	1400	100	600	700	3300	900	2400	500	1000	900	1300	2800	100
Educational institutions	21000	2600	1000	1600	(1)	2900	800	2100	14100	(1)	(1)	700	500	100
Non-profit organizations	8900	700	200	500	100	3900	1100	2800	1000	(1)	600	100	2300	200

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Other social scientists														
Federal gov't	4400	1100	(1)	600	500	1600	1000	600	(1)	(1)	200	1200	200	(1)
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
State/local gov't	7200	1100	(1)	600	600	3200	300	2900	700	400	300	1000	200	200
Other gov't	400	(1)	(1)	(1)	(1)	300	300	(1)	(1)	(1)	(1)	100	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	200	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100
Total engineers	1719000	617500	8400	64000	545100	467100	157300	309800	27700	101300	301600	73000	59100	71600
Business and industry	1383200	532100	4400	39600	488100	366600	126400	240300	4500	95000	244300	56100	55200	29400
Educational institutions	45800	13500	2200	6800	4400	6300	2600	3700	21600	300	2100	600	400	1000
Non-profit organizations	23000	9400	300	3800	5300	7400	3800	3600	100	900	2800	1400	300	600
Federal gov't	128700	41800	1300	10500	30000	48600	19700	29000	900	2300	23800	7900	800	2500
Military	9200	1900	200	600	1100	3400	1200	2200	200	100	2500	400	600	100
State/local gov't	83200	15500	100	1900	13500	32000	2800	29200	100	1800	23900	5900	1100	2800
Other gov't	2100	600	(1)	200	400	500	100	400	(1)	200	300	200	100	400
Other	4400	1500	(1)	400	1100	800	400	400	(1)	400	900	400	400	(1)
No report	39500	1300	(1)	200	1200	1400	300	1100	100	400	900	200	400	34900
Aeronautical/astronautical	77200	36700	800	6300	29600	22300	14900	7400	1100	800	7600	4400	1000	3400
Business and industry	57500	29600	400	3300	25900	16200	11100	5200	200	800	5600	3300	600	1100
Educational institutions	2000	900	(1)	600	200	300	200	100	800	(1)	(1)	(1)	(1)	100
Non-profit organizations	1000	600	100	200	300	300	300	(1)	(1)	(1)	(1)	100	(1)	(1)
Federal gov't	12900	5100	200	2200	2700	4900	3000	1900	(1)	(1)	1700	800	100	300
Military	1200	300	100	100	200	300	200	100	(1)	(1)	300	(1)	300	(1)
State/local gov't	400	200	(1)	(1)	200	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	100	(1)	(1)
No report	2100	100	(1)	(1)	100	100	100	(1)	(1)	(1)	(1)	(1)	(1)	1900
Chemical	101000	43300	400	5300	37600	28500	9900	18600	1200	2500	17800	2600	1800	3400
Business and industry	91500	39900	300	3500	36100	26000	8500	17600	(1)	2300	17400	2400	1800	1600

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Chemical														
Educational institutions	2400	1100	100	700	300	200	(1)	200	1200	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	1300	400	(1)	300	100	800	700	100	(1)	100	(1)	(1)	(1)	(1)
Federal gov't	2900	1700	(1)	700	900	800	500	300	(1)	100	200	100	(1)	100
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
State/local gov't	800	100	(1)	100	(1)	600	200	400	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	200	100	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
Other	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	1900	(1)	(1)	(1)	(1)	200	(1)	200	(1)	(1)	(1)	100	(1)	1700
Civil	243700	47000	400	4100	42400	79200	8800	70300	3300	38600	50400	10400	3500	11500
Business and industry	147300	30000	400	1500	28200	43700	5300	38400	300	36300	27000	4200	2500	3200
Educational institutions	5200	1000	(1)	800	100	800	400	300	2800	100	300	100	100	200
Non-profit organizations	1500	400	(1)	(1)	400	600	100	600	(1)	(1)	300	100	100	100
Federal gov't	24000	4900	(1)	800	4100	10400	1000	9400	100	700	5700	1900	100	300
Military	2000	200	(1)	100	200	1100	100	1000	100	(1)	500	(1)	100	(1)
State/local gov't	56000	10100	(1)	1000	9000	22000	1800	20200	(1)	1200	16200	3900	500	2100
Other gov't	500	100	(1)	(1)	100	100	(1)	100	(1)	100	100	(1)	(1)	100
Other	1000	100	(1)	(1)	100	300	100	200	(1)	300	200	100	100	(1)
No report	6200	200	(1)	(1)	200	100	(1)	100	100	(1)	100	100	100	5500
Electrical/electronics	413500	188900	2700	17500	168800	104700	51800	52900	6800	14500	61200	14500	6500	16200
Business and industry	338300	161100	1000	10700	149300	86100	42600	43500	1300	13400	51400	12100	6200	6700
Educational institutions	12200	4700	800	1900	1900	1500	500	1000	5100	100	500	100	100	100
Non-profit organizations	7300	3300	200	1200	1900	2400	1300	1100	(1)	200	900	100	100	100
Federal gov't	38200	16200	600	3200	12300	12100	6700	5500	400	600	6300	1900	100	600
Military	2200	600	100	100	500	800	500	200	(1)	(1)	700	100	(1)	(1)
State/local gov't	4500	1600	(1)	100	1500	1400	100	1300	(1)	100	1100	100	(1)	200
Other gov't	300	100	(1)	(1)	100	(1)	(1)	(1)	(1)	100	100	(1)	(1)	(1)
Other	1100	600	(1)	100	500	100	(1)	100	(1)	(1)	200	100	(1)	(1)
No report	9500	700	(1)	100	600	300	100	200	(1)	(1)	(1)	(1)	(1)	8500

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity														
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Industrial	100400	22800	100	800	22000	29800	4400	25400	1900	3400	28000	8000	2100	4200
Business and industry	89600	22100	100	800	21200	27400	3900	23500	500	3000	26200	7100	1600	1800
Educational institutions	1600	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1400	(1)	100	100	(1)	(1)
Non-profit organizations	1200	200	(1)	(1)	200	400	100	300	(1)	200	(1)	100	100	300
Federal gov't	4200	400	(1)	(1)	400	1700	300	1400	(1)	(1)	1200	500	300	100
Military	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
State/local gov't	1000	100	(1)	(1)	100	300	100	200	(1)	200	300	200	(1)	(1)
Other gov't	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
No report	2400	100	(1)	(1)	100	100	100	100	(1)	(1)	100	(1)	100	2000
Materials	36200	13800	600	3800	9400	9500	5300	4200	800	1300	7900	700	600	1500
Business and industry	30800	11700	100	2800	8800	8500	4500	4100	100	1200	7300	600	600	700
Educational institutions	1900	700	300	400	100	300	200	100	800	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	400	300	(1)	200	100	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)
Federal gov't	2000	900	200	300	500	600	600	(1)	(1)	100	300	100	(1)	100
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	100	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No report	700	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	700
Mechanical	334400	154800	1300	10500	143000	90500	32200	58300	5800	12800	45800	6900	5000	12800
Business and industry	292300	142700	700	7500	134500	79800	28000	51800	600	12200	40300	5700	4700	6300
Educational institutions	9400	1800	300	800	700	1300	300	1000	5100	100	600	200	100	300
Non-profit organizations	3500	1400	(1)	500	800	1400	600	800	(1)	100	600	100	(1)	(1)
Federal gov't	17800	7100	200	1300	5700	6400	3000	3400	100	300	3000	700	100	200
Military	800	200	(1)	100	100	100	100	100	100	(1)	200	(1)	100	100
State/local gov't	3100	1000	(1)	100	800	1100	100	1000	(1)	100	600	200	(1)	100
Other gov't	100	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity													
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Rptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Mechanical														
Other	700	500	(1)	100	400	100	100	100	(1)	(1)	100	(1)	(1)	(1)
No report	6700	100	(1)	100	(1)	300	100	200	(1)	(1)	400	(1)	(1)	5900
Mining	12500	2800	100	800	1900	3300	800	2500	300	1400	3100	1200	200	300
Business and industry	10600	2300	100	400	1900	3000	800	2300	(1)	1200	2800	900	200	100
Educational institutions	500	200	(1)	100	(1)	(1)	(1)	(1)	300	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)
Federal gov't	600	200	(1)	100	(1)	100	(1)	100	(1)	100	100	200	(1)	(1)
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
State/local gov't	400	200	(1)	100	(1)	100	(1)	(1)	(1)	(1)	200	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)
No report	200	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	(1)	(1)	(1)	100
Nuclear	17700	5300	200	1100	4000	6000	1900	4000	200	900	3200	1000	300	800
Business and industry	12000	4200	100	600	3400	3600	1000	2600	200	900	2100	700	100	200
Educational institutions	500	200	(1)	(1)	100	300	300	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	500	200	(1)	200	100	200	100	100	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	3200	600	(1)	200	400	1600	600	1000	(1)	(1)	800	200	(1)	100
Military	700	100	100	100	(1)	300	(1)	300	(1)	(1)	200	(1)	(1)	(1)
State/local gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	300	100	(1)	100	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	100	(1)
No report	600	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	600
Petroleum	25000	5500	300	1100	4200	6000	1400	4600	300	2300	7500	1100	900	1600
Business and industry	22600	5400	300	1000	4100	5500	1000	4500	200	2100	7100	800	800	800
Educational institutions	200	100	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	(1)	(1)
Non-profit organizations	100	(1)	(1)	(1)	(1)	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Federal gov't	800	(1)	(1)	(1)	(1)	400	300	100	(1)	(1)	200	100	(1)	100
Military	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

See footnotes at end of table.

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Table B-12. Scientists and engineers employed in science and engineering jobs by field, type of employer, and primary work activity: 1982-Continued

Field and type of employer	Primary work activity														
	Total	Research and development				Management/admin.			Teaching	Consulting	Product/ Inspection	Reptg./ stats./ computing	Other	No report
		Total	Basic research	Appld. research	Development	Total	of R&D	Other than R&D						
Petroleum														
State/local gov't	300	(1)	(1)	(1)	(1)	100	(1)	100	(1)	(1)	100	100	(1)	(1)
Other gov't	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	100	(1)
No report	900	100	(1)	(1)	100	(1)	(1)	(1)	(1)	100	(1)	(1)	(1)	700
Other engineers	357400	96600	1600	12800	82300	87300	25900	61400	5800	22800	69300	22300	37300	16000
Business and industry	290700	83000	900	7500	74700	66700	19800	46900	1200	21500	57100	18200	36100	6800
Educational institutions	9900	2900	600	1500	900	1700	700	1000	4000	(1)	600	200	100	200
Non-profit organizations	6000	2600	(1)	1200	1400	1100	500	600	100	300	800	800	100	100
Federal gov't	22000	4700	100	1700	3000	9800	3900	5900	300	500	4300	1400	200	600
Military	2100	400	(1)	300	100	800	300	600	(1)	100	600	200	(1)	(1)
State/local gov't	16400	2300	(1)	500	1800	6300	300	6000	100	200	5200	1300	500	500
Other gov't	1000	300	(1)	100	100	200	100	200	(1)	(1)	100	100	(1)	300
Other	800	100	(1)	100	100	300	200	(1)	(1)	(1)	300	100	100	(1)
No report	8500	200	(1)	(1)	200	400	100	300	(1)	200	200	(1)	100	7400

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-13. Scientists and engineers employed in science and engineering jobs by field, sex, and race: 1982

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Total, all fields	2866600	2638200	59000	122500	12800	34100
Men	2552400	2364200	41400	105800	11200	29800
Women	314200	273900	17700	16700	1600	4300
Total scientists	1147500	1058300	30000	40700	5000	13500
Men	887700	828100	16900	28500	3700	10400
Women	259900	230200	13100	12200	1300	3000
Physical scientists	210500	197700	2900	7400	600	2000
Men	190000	179300	2300	6000	600	1900
Women	20500	18300	600	1500	(1)	100
Chemists	142100	132400	2500	5600	500	1000
Men	125700	118200	1900	4200	500	900
Women	16300	14200	600	1400	(1)	100
Physicists/astronomers	44900	42700	200	1200	100	700
Men	42600	40500	200	1100	100	700
Women	2300	2200	(1)	100	(1)	(1)
Other physical scientists	23500	22500	100	600	(1)	300
Men	21600	20600	100	600	(1)	300
Women	1900	1900	(1)	(1)	(1)	(1)
Mathematical scientists	68300	61800	3400	2500	100	500
Men	45500	42400	900	1800	100	300
Women	22800	19400	2500	600	(1)	200
Mathematicians	52800	47800	2500	1900	100	500
Men	36900	34200	800	1500	100	300
Women	15900	13600	1700	400	(1)	200
Statisticians	15500	14000	900	500	(1)	(1)
Men	8600	8200	100	300	(1)	(1)
Women	6900	5800	800	200	(1)	(1)
Computer specialists	216100	196000	6200	10400	700	2800
Men	158700	146500	2800	6700	400	2200
Women	57400	49500	3400	3700	200	600

See footnotes at end of table.

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Table B-13. Scientists and engineers employed in science and engineering jobs by field, sex, and race: 1982-Continued

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Environmental scientists	82700	76700	400	3600	900	1200
Men	71100	65200	300	3500	800	1200
Women	11700	11400	100	100	(1)	(1)
Earth scientists	69900	65000	300	2900	700	900
Men	59400	54700	300	2900	700	900
Women	10500	10300	(1)	(1)	(1)	(1)
Oceanographers	3100	2600	(1)	100	200	200
Men	2700	2200	(1)	100	200	100
Women	400	400	(1)	(1)	(1)	(1)
Atmospheric scientists	9800	9000	(1)	600	(1)	100
Men	9000	8300	(1)	600	(1)	100
Women	800	700	(1)	(1)	(1)	(1)
Life scientists	298000	280400	7500	6500	1000	2500
Men	239000	225500	6400	4700	800	1700
Women	59000	55000	1200	1900	200	800
Biological scientists	210100	197000	6000	4800	500	1900
Men	167200	157400	5100	3400	300	1200
Women	42800	39600	900	1400	200	700
Agricultural scientists	62300	59400	1200	900	400	300
Men	51900	49500	1000	600	400	300
Women	10400	9900	200	200	(1)	100
Medical scientists	25700	24000	400	900	100	300
Men	19800	18600	300	700	100	300
Women	5800	5400	100	200	(1)	(1)
Psychologists	105600	100700	2400	1000	600	900
Men	66400	63800	1200	500	300	600
Women	39300	36900	1200	600	300	300
Social scientists	166200	145100	7200	9300	1200	3500
Men	117100	105400	3100	5400	600	2500
Women	49200	39600	4100	3900	600	1000

See footnotes at end of table.

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Table B-13. Scientists and engineers employed in science and engineering jobs by field, sex, and race: 1982-Continued

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Economists	75000	64600	1800	6300	800	1400
Men	60700	54300	600	4000	500	1300
Women	14300	10400	1200	2300	300	100
Sociologists/anthropologists	37800	33200	2000	1400	300	900
Men	22400	19800	1000	600	100	900
Women	15400	13400	1100	800	100	(1)
Other social scientists	53500	47200	3400	1500	100	1300
Men	34000	31400	1500	700	(1)	300
Women	19500	15900	1800	800	100	900
Total engineers	1719000	1579800	29000	81700	7800	20600
Men	1664700	1536100	24500	77300	7500	19400
Women	54300	43800	4500	4400	300	1200
Aeronautical/astronautical	77200	72700	1100	2600	100	700
Men	75100	70900	1000	2400	100	700
Women	2100	1800	100	100	(1)	(1)
Chemical	101000	91800	900	6800	200	1300
Men	95300	87100	700	6200	200	1100
Women	5700	4700	200	600	(1)	200
Civil	243700	218300	3600	16500	800	4400
Men	237800	213600	3300	15800	800	4300
Women	5900	4900	300	600	(1)	100
Electrical/electronics	413500	375100	8800	23100	2200	4300
Men	405400	369000	8100	22200	2100	4000
Women	8100	6100	700	1000	(1)	300
Industrial	100400	94600	2000	2600	400	800
Men	96100	91100	1500	2500	400	700
Women	4200	3500	500	100	(1)	(1)

See footnotes at end of table.

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Table B-13. Scientists and engineers employed in science and engineering jobs by field, sex, and race: 1982-Continued

Field and sex	Race					
	Total	White	Black	Asian	Native American	Other
Materials	36200	33400	400	1900	200	200
Men	34500	32000	300	1800	200	200
Women	1700	1500	100	100	(1)	(1)
Mechanical	334400	310800	3400	14600	1800	3700
Men	327700	304900	3200	14100	1800	3600
Women	6700	5900	200	400	(1)	200
Mining	12500	12300	(1)	200	(1)	(1)
Men	12100	11800	(1)	200	(1)	(1)
Women	500	500	(1)	(1)	(1)	(1)
Nuclear	17700	16300	100	1000	(1)	200
Men	17300	15900	100	1000	(1)	200
Women	400	400	(1)	(1)	(1)	(1)
Petroleum	25000	23500	200	500	400	400
Men	23700	22300	200	500	200	400
Women	1300	1100	(1)	(1)	100	(1)
Other engineers	357400	330800	8500	11900	1800	4500
Men	339800	317300	6100	10500	1700	4200
Women	17600	13500	2400	1300	100	300

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

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Table B-14. Scientists and engineers of Hispanic origin employed in science and engineering jobs by field: 1982

Field	Hispanic
Total, all fields	58400
Total scientists	20300
Physical scientists	3000
Chemists	1900
Physicists/astronomers	700
Other physical scientists	400
Mathematical scientists	1300
Mathematicians	900
Statisticians	400
Computer specialists	3300
Environmental scientists	1300
Earth scientists	1100
Oceanographers	(1)
Atmospheric scientists	100
Life scientists	5200
Biological scientists	3500
Agricultural scientists	1100
Medical scientists	600
Psychologists	1200
Social scientists	5000
Economists	1700
Sociologists/anthropologists	1400
Other social scientists	1900
Total engineers	38000
Aeronautical/astronautical	1300
Chemical	2500
Civil	7600

See footnotes at end of table.

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Table B-14. Scientists and engineers of Hispanic origin employed in science and engineering jobs by field: 1982-Continued

Field	Hispanic
Electrical/electronics	8600
Industrial	2300
Materials	300
Mechanical	6200
Mining	100
Nuclear	200
Petroleum	800
Other engineers	8000

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.

SOURCE: National Science Foundation.

Table B-15. Employed scientists and engineers by geographic location: 1982

State	Total	Total scientists	Total engineers
Total	3253000	1405700	1847200
Alabama	40400	16200	24100
Alaska	5800	3500	2400
Arizona	34800	13500	21200
Arkansas	13900	6900	7100
California	456500	171300	283100
Colorado	69000	30800	38300
Connecticut	72500	30300	42100
Delaware	12600	5300	7300
District of Columbia	48500	34200	15400
Florida	83600	30600	52600
Georgia	55100	25600	29700
Hawaii	13400	6100	7300
Idaho	12000	6200	5900
Illinois	152900	66900	86100
Indiana	58300	23800	34300
Iowa	28500	12900	15700
Kansas	25000	11900	13200
Kentucky	25700	10900	14700
Louisiana	41600	17700	23800
Maine	10900	5700	5200
Maryland	87600	46200	42200
Massachusetts	131800	58900	73000
Michigan	126800	41700	84000
Minnesota	61200	29300	32200
Mississippi	16500	8800	7800
Missouri	63100	25700	37400
Montana	8000	5300	2800
Nebraska	14100	7800	6400
Nevada	7200	4000	3300
New Hampshire	15000	7400	7600
New Jersey	140400	60700	79600
New Mexico	20100	10100	10100
New York	265900	135900	131700
North Carolina	57600	25800	31800
North Dakota	6300	4600	1900
Ohio	155900	57800	97400
Oklahoma	37700	17400	20300
Oregon	35500	19100	16700

See footnotes at end of table.

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Table B-15. Employed scientists and engineers by geographic location: 1982-Continued

State	Total	Total scientists	Total engineers
Pennsylvania	165600	68700	96700
Rhode Island	10800	5700	5200
South Carolina	26800	9400	17200
South Dakota	5200	2600	2600
Tennessee	48900	22100	26800
Texas	213500	85600	127400
Utah	22400	8300	14000
Vermont	7400	3400	4000
Virginia	78300	38000	40700
Washington	82000	29700	51800
West Virginia	14800	6300	8500
Wisconsin	58400	24300	34000
Wyoming	6900	4400	2600

NOTE: Detail may not add to total because of rounding.
Geographic location refers to place of employment.

SOURCE: National Science Foundation.

section c

reproduction of survey questionnaires

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O.M.B. No. 3145-0071 Approval Expires December 31, 1983

NOTICE — Your report to the Census Bureau is confidential by law (title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes.

FORM **SSE-20** (2-22-82)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1982 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS

PLEASE COMPLETE AND RETURN TO

Bureau of the Census
ATTN: Current Projects Branch
1201 East Tenth Street
Jeffersonville, Indiana 47132

Please read instructions carefully before answering questions.

Answer as accurately as you can by printing your reply clearly or by entering an "X" in the box next to the appropriate reply.

If the instructions for a question direct you to enter a code and description from a list, please refer to the Reference List Guide that is enclosed.

001 | 1

IF YOU HAVE MOVED, or if there are errors in the address label above, please enter the correct information about your name and current residence below.

Name

Number and street

City or town | County 002

State or foreign country 003 | ZIP code

FROM THE DIRECTOR
BUREAU OF THE CENSUS

One of our Nation's most valued resources is the highly trained and educated personnel in scientific, engineering, and other fields. Such individuals have provided much of the creativity and initiative that have contributed to United States development. It is essential that industry, academe, and government have current information about this valuable resource in order to plan for its effective development and use.

The National Science Foundation, the government agency responsible for the collection and dissemination of information concerning the Nation's science and engineering personnel, has asked the Bureau of the Census to conduct a survey of persons from a variety of occupations who have attained certain levels of education. The purpose of this survey is to obtain information about their education and training, employment and career development, and the relationship of their training to subsequent occupation. This information can be utilized in planning and analysis by private industry, industrial and trade associations, federal and state government agencies, and colleges and universities. For this survey to yield representative results, it is important that each person contacted in the survey complete and return this questionnaire.

Beginning on page 2, please answer the questions and return your questionnaire in the enclosed addressed envelope. For some questions, you are asked to enter a code and description from Reference List A, B, or C. This Reference List Guide is enclosed.

This information is being collected under the authority of the National Science Foundation Act of 1950, as amended (42 USC 1862). The information you provide is confidential and may be seen only by sworn Census Bureau employees. The information may be used only for statistical purposes and cannot be given to any other government agency, private concern, or individual. These data will be released only in the form of statistical summaries which will preclude the identification of any survey participant. Your response is entirely voluntary, and your failure to provide some or all of the requested information will in no way adversely affect you.

The National Science Foundation and the Census Bureau appreciate your cooperation.

Sincerely,

Bruce Chapman

BRUCE CHAPMAN

Enclosures

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Part I — SOME FACTS ABOUT YOURSELF

1. Sex — 101
1 ☐ Male
2 ☐ Female

2. Are you — — 102
1 ☐ American Indian or Alaskan Native
2 ☐ Asian or Pacific Islander
3 ☐ Black
4 ☐ White
5 ☐ Other — *Specify* _____

3. Are you of Spanish/Hispanic origin or descent? — 103
2 ☐ No
1 ☐ Yes → 104
1 ☐ Mexican-American
2 ☐ Puerto Rican
3 ☐ Other Hispanic

4. In what month and year were you born? — 105 ☐☐ Month *(Enter two-digit month code in boxes, e.g. "01" for January, etc.)*
106 1 9 ☐☐ Year

5. As of May 9, 1982, what was your marital status? — 107
1 ☐ Married
2 ☐ Widowed
3 ☐ Separated
4 ☐ Divorced
5 ☐ Never married

6. Did you have any children living with you as of May 9, 1982, who were —

a. 6–17 years of age? — 108
1 ☐ Yes
2 ☐ No

b. Under 6 years of age? — 109
1 ☐ Yes
2 ☐ No

7a. Are you a U.S. citizen? — 110
1 ☐ Yes — *SKIP to 8a*
2 ☐ No, non-U.S. citizen, immigrant (permanent resident) } *GO to b*
3 ☐ No, non-U.S. citizen, non-immigrant (temporary resident) }

b. If non-U.S. citizen, of which country are you a citizen? — 111 ☐☐ *Specify country* _____

8a. Are you physically handicapped? — 112
1 ☐ Yes — *GO to b*
2 ☐ No — *SKIP to 9*

b. What is the nature of your handicap(s)? — 113
Mark (X) all that apply
1 ☐ Visual
2 ☐ Auditory
3 ☐ Ambulatory
4 ☐ Other — *Specify* _____

Part II — EDUCATION AND TRAINING

9. How many years of formal education have you COMPLETED beyond high school? — 114
_____ Years — *GO to 10*
0 ☐ None — *SKIP to 12a*

10. Beginning with the most recent and working back, list each institution beyond the high school level from which you have obtained or are obtaining formal training leading to an academic degree. Designate degrees by abbreviations, for example, AA, BS, BA, MS, Ph.D., LLB, MD, etc. Use a separate line for each degree granted or worked for, or for any change in major field of specialized study. Refer to List A on the enclosed Reference List Guide for the code numbers of major fields. Do NOT include correspondence courses, on-the-job training, apprenticeship, or training at an employer's training school; training of these types should be reported in question 12a. If you need more space, attach a separate sheet of paper and give the same type of information for each additional school.

	College, university, or other post high school institution *Name, city, and State or foreign country*	Type of degree worked for, if any (AA, BS, etc.), or none	Year degree awarded	Major field *Enter code and description from Reference List A* Code	Description
MOST RECENT		116	117	118	
		OR	19 ☐☐ OR		
115		0 ☐ None	0 ☐ None		
SECOND TO LAST		120	121	122	
		OR	19 ☐☐ OR		
119		0 ☐ None	0 ☐ None		
THIRD TO LAST		124	125	126	
		OR	19 ☐☐ OR		
123		0 ☐ None	0 ☐ None		
FOURTH TO LAST		128	129	130	
		OR	19 ☐☐ OR		
127		0 ☐ None	0 ☐ None		

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Part II — EDUCATION AND TRAINING — Continued

11. If you are a student attending a college or university, mark your status. — 132

1 ☐ Student, full-time
2 ☐ Student, part-time
3 ☐ Not currently a student

12a. Which of these kinds of training did you participate in during 1980 or 1981?
Mark (X) the appropriate year for each type of training you received.

1980	1981	KIND OF TRAINING
133 1 ☐ *	134 1 ☐ *	Military training applicable to present civilian occupation
2 ☐	2 ☐	Extension or correspondence courses applicable to present civilian occupation
3 ☐	3 ☐	Courses at employer's training facility
4 ☐	4 ☐	Courses at adult education center
5 ☐	5 ☐	Courses presented in conjunction with professional meetings
6 ☐	6 ☐	Courses presented by professional training organizations (commercial or non-profit)
7 ☐	7 ☐	Other training
0 ☐	0 ☐	None

b. Were continuing education units (CEU's) or other forms of recognized credit units earned as a result of the above training (in item 12a)?

1980	1981
135 1 ☐ Yes	136 1 ☐ Yes
2 ☐ No	2 ☐ No

Part III — EMPLOYMENT STATUS

13. During the week of May 9, 1982, were you — — 137

1 ☐ Working full time (35 hours or more per week in at least one position) *SKIP to 17a*
2 ☐ Working part time *GO to 14*
3 ☐ Not working, but seeking work *SKIP to Part IV*
4 ☐ Not working and not seeking work *SKIP to 15*

14. Were you seeking full-time work? — 138

1 ☐ Yes
2 ☐ No
} *SKIP to 17a*

15. Did you look for work at any time during the 3 weeks PRIOR to the week of May 9, 1982? — 139

1 ☐ Yes
2 ☐ No

16. What was the MAIN reason you were not working or not seeking work during the week of May 9, 1982?
Mark (X) only one box. — 140

1 ☐ On layoff from a job
2 ☐ On vacation or otherwise temporarily absent from a job for health or personal reasons
} *GO to 17a*

3 ☐ Retired
4 ☐ Student
5 ☐ Family responsibilities
6 ☐ Chronic illness or permanent disability
7 ☐ Could not find work or believed no jobs available in my particular field
8 ☐ Did not want to work
9 ☐ New job to begin within 30 days
10 ☐ Waiting for school to begin
11 ☐ Other *Specify*
} *SKIP to Part IV*

17a. During the week of May 9, 1982, were you working at (or on layoff from) a position related to the natural sciences, social sciences, or engineering? — 141

1 ☐ Yes *SKIP to Part IV*
2 ☐ No *GO to b*

b. What was the most important reason for taking this nonscience or nonengineering position?
Mark (X) only one box. — 142

1 ☐ Preferred nonscience or nonengineering position
2 ☐ Promoted out of science or engineering position
3 ☐ Pay was better in nonscience or nonengineering position
4 ☐ Locational preference
5 ☐ Science or engineering position not available
6 ☐ Other *Specify*

Part IV — EMPLOYMENT PROFILE

143 ☐ If you were never employed nor self-employed during or at any time prior to the week of May 9, 1982, mark the box and skip to item 30 on page 6.

In this part of the questionnaire, we are asking questions about your job held during the week of May 9, 1982, or, if you were not employed at that time, about your most recent job prior to May 9. List any employment, including a military service job, not just a scientific or technical job. If you had more than one regular job the week of May 3, record the one which you consider to be your principal employment.

18a. For whom did you work? *Enter name of company, business organization, government agency, or other employer for self-employed.*

b. Location where you were employed. *Enter city, county, and State where company, business or other employer is located.*

144 145

CONTINUE WITH PAGE 6

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Part IV — EMPLOYMENT PROFILE — Continued

19. What kind of business was this?

Enter code and description from Reference List B. If the organization conducted its activities at different locations, enter the description of the activity at the location where you were employed.

146 Code ____ Description from Reference List B ____

20. What kind of work were you doing?

Enter the code and description of your occupation from Reference List C.

147 Code ____ Description from Reference List C ____

21a. Which category best describes the type of organization of your principal employment?

Mark (X) only one box.

148
- 01 ☐ Self-employed
- 02 ☐ Business or industry
- 03 ☐ Junior college, 2-year college, technical institute
- 04 ☐ Medical school
- 05 ☐ 4-year college or university, other than medical school
- 06 ☐ Elementary or secondary school system
- 07 ☐ Hospital or clinic
- 08 ☐ Non-profit organization, other than hospital, clinic, or educational institution
- 09 ☐ U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA
- 10 ☐ U.S. Government, civilian employee
- 11 ☐ State government
- 12 ☐ Local or other government — *Specify* ____
- 13 ☐ International agency
- 14 ☐ Other — *Specify* ____

b. If you had more than one job during the week of May 9, 1982, enter the category code from above that is most appropriate for your SECOND job.

Enter the appropriate code (01 – 14) from item 21a above.

150 ☐☐ Second job

0 ☐ Did not have a second job the week of May 9, 1982

22. From the activities listed below, select your primary and secondary work activities for your principal job as reported in item 18, in terms of time devoted for a typical week. *Enter the appropriate code (01 – 16) for each in the specified box.*

151 ☐☐ Primary work activity

152 ☐☐ Secondary work activity

PLEASE NOTE:

Basic research is study directed toward gaining scientific knowledge primarily for its own sake.
Applied research is study directed toward gaining scientific knowledge in an effort to meet a recognized need.
Development is direction of the knowledge gained from research toward production of useful materials, devices, systems, and methods.

Code
- **01** – Management or administration of research and development
- **02** – Management or administration of other than research and development
- **03** – Teaching and training — preparing and teaching courses, guiding and counseling students or trainees
- **04** – Basic research
- **05** – Applied research
- **06** – Development — product, process, and technical development
- **07** – Report and technical writing, editing, information retrieval
- **08** – Clinical diagnosis

Code
- **09** – Design of equipment, processes, models
- **10** – Quality control, testing, evaluation, or inspection
- **11** – Operations — production, maintenance, construction, installation
- **12** – Distribution — sales, traffic, purchasing, customer and public relations
- **13** – Statistical work — survey work, forecasting, statistical analysis
- **14** – Consulting
- **15** – Computer applications
- **16** – Other activities — *Specify* ____

23. During a typical week in your principal job reported in item 18, what percent of working time did you devote to each of the following activities?

Entries should total 100%.

153 ____ % Management or administration
154 ____ % Basic research
155 ____ % Applied research
156 ____ % Development
157 ____ % Teaching
158 ____ % Operations, production
159 ____ % Other
100%

24a. For your principal job reported in item 18, what basic annual salary do you CURRENTLY earn? *Exclude bonuses, overtime, summer teaching, or other payments for secondary jobs.*

160 $ ____ 00 Per year — *GO to b*

161 0 ☐ Not currently employed at that job — *SKIP to 25*

b. If academically employed in your principal job, mark whether your salary is for —

163
- 1 ☐ 9 – 10 months
- 2 ☐ 11 – 12 months

25. What was your total professional income in 1981 including basic annual salary, bonuses, overtime, summer teaching, consulting fees, etc.?

164 $ ____ 00 In 1981

0 ☐ None

CONTINUE WITH PAGES 5 AND 6

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Part IV — EMPLOYMENT PROFILE — Continued

26. What was your basic annual salary in 1981 for the principal job you held longest, excluding bonuses, overtime, summer teaching, consulting fees, etc.?

165 $_____ .00

0 ☐ None

27a. During the week of May 9, 1982, was any of your work at your principal job supported by U.S. Government funds?

166

1 ☐ Yes — *GO to b*
2 ☐ No
3 ☐ Don't know
} *SKIP to 28*

b. Which of these agencies or departments were supporting your work?

Mark (X) all that apply.

167 *

1 ☐ AID (Agency for International Development)
2 ☐ Department of Agriculture
3 ☐ Department of Commerce
4 ☐ Department of Defense
5 ☐ Department of Energy
6 ☐ Department of Education (NIE, OE, NCES)
7 ☐ Department of Health and Human Services (Old HEW)
8 ☐ Department of Housing and Urban Development
9 ☐ Department of the Interior
10 ☐ Department of Justice
11 ☐ Department of Labor
12 ☐ Department of Transportation
13 ☐ EPA (Environmental Protection Agency)
14 ☐ NASA (National Aeronautics and Space Administration)
15 ☐ NSF (National Science Foundation)
16 ☐ Nuclear Regulatory Commission
17 ☐ Other — *Specify*_____
18 ☐ Don't know source agency

28. From this list of selected areas of national interest, indicate the ONE area to which you devote(d) the MOST professional time during a typical week at the job reported in item 18.

168

1 ☐ Energy and fuel — *GO to 29a*
2 ☐ Health
3 ☐ Environment

Education

4 ☐ Teaching
5 ☐ Other education

6 ☐ National defense
7 ☐ Crime prevention and control
8 ☐ Food production and technology
9 ☐ Other mineral resources
10 ☐ Community development and service
11 ☐ Housing (planning, design, construction)
12 ☐ None of the above

} *SKIP to 30*

29a. Please mark your best estimate of the percent of your professional time that you devote(d) to energy and fuel during a typical week

169

1 ☐ 100 percent
2 ☐ 75 to 99 percent
3 ☐ 50 to 74 percent
4 ☐ 25 to 49 percent
5 ☐ 24 percent or less

b. From this list, mark the ONE energy source that involves(d) the LARGEST proportion of your energy-related work during a typical week.

170

1 ☐ Coal and coal products
2 ☐ Petroleum (including oil shale and tar sands) or natural gas
3 ☐ Fission
4 ☐ Fusion
5 ☐ Hydroenergy
6 ☐ Direct solar (including space and water heating, thermal, electric)
7 ☐ Indirect solar (winds, tides, biomass, etc.)
8 ☐ Geothermal
9 ☐ Other — *Specify*_____

c. Please read this list of energy-related activities and mark the item(s) that best describe the activity(ies) in which you are (were) engaged during a typical week.

Mark (X) all that apply.

171 *

01 ☐ Exploration
02 ☐ Extraction (gas, oil, mining)
03 ☐ Manufacture of energy-related components or products
04 ☐ Fuel processing (including refining and enriching)
05 ☐ Electric power generation
06 ☐ Transportation, transmission, distribution of fuel or energy
07 ☐ Energy storage
08 ☐ Energy utilization, management
09 ☐ Fuel reprocessing or disposal
10 ☐ Energy conservation
11 ☐ Environmental impact (health, economic, etc.)
12 ☐ Education, training
13 ☐ Other — *Specify*_____

d. Please enter the number of the activity from the above list (29c) that best describes the activity in which you spend(t) MOST of your energy-related time.

Enter the appropriate code number (01 to 13) from item 29c above

172 ☐☐ Activity

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Part V — OTHER INFORMATION

30. During calendar year 1981, how many weeks —

(a) Did you work? (Include weeks of paid vacation, paid sick leave, and military service.)	173	_____ Weeks
(b) Were you without a job, but seeking work; or on layoff from a job?	174	_____ Weeks
(c) Were you not working, not seeking work, and not on layoff from a job?	175	_____ Weeks
(Entries should total 52 weeks.)		**52 Weeks**

31. How many years of professional work experience, including teaching, have you had?

175 _____ Years
0 ☐ None

32. Since age 22, have you had any periods of at least one year's duration when you were neither employed, nor looking for work, nor attending school full time? (Do NOT include time in the Armed Forces.)

177 2 ☐ No
1 ☐ Yes — **How many years?**
178 _____ Total years

33. *Complete the following statement:* **Based on my total education and experience, I regard myself professionally as a (an) —**

Enter code and description from Reference List C.

179 Code ☐☐☐ Description from Reference List C

34. Are you currently a member of a national professional society or association?

180 2 ☐ No
1 ☐ Yes — *Specify organization(s)*
181 ☐☐ (1) _____
182 ☐☐ (2) _____
183 ☐☐ (3) _____

35. Are you currently professionally licensed, certified, or registered? For example: teaching certificate, medical license, professional society certification, etc.

184 2 ☐ No
1 ☐ Yes — *Give title(s)*
185 ☐☐ (1) _____
186 ☐☐ (2) _____

36a. Was the position you held on May 9, 1976, different from your present position? (Consider a change of position to have occurred if you changed employers, if you remained with the same employer but changed your occupation, or if you remained with the same employer but had a significant change in duties or level of responsibility.)

187
1 ☐ Yes — *GO to b*
2 ☐ No
3 ☐ Not working the week of May 9, 1976
4 ☐ Not currently working
} *SKIP to 37a*

b. How was it different?

Mark (X) all that apply.

188
1 ☐ Different employer
2 ☐ Different occupation
3 ☐ Different duties or responsibilities
4 ☐ Other — *Specify change*

37a. In the event it is necessary to contact you to clarify some of the information you provided, may we contact you by telephone?

Yes — *GO to b*
No — *SKIP to 38*

b. Enter the telephone number on which you can be reached.

189 Area code _____ Number _____

c. If there is an alternate number on which you can be reached, enter it also.

190 Area code _____ Number _____

38. Please enter the name of a person, other than yourself and at an address other than yours, through whom you can be reached.

191 Name _____
Relationship to you _____
Number and street _____
City or town _____
State or foreign country _____ ZIP code _____

39. Please print your full name _____ **40.** Date prepared _____

Thank you for completing this questionnaire. Please return the completed form in the enclosed addressed envelope.

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FORM **SSE-25**
(2-22-82)

U. S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

REFERENCE LIST GUIDE

1982 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS

REFERENCE LIST A — MAJOR FIELDS OF STUDY

This list is to be used in answering question 10 „bout the field(s) in which you have obtained study or training. It is a list of fields of academic study generally leading to bachelor's or higher degrees.

Please scan the entire list, choose the appropriate answer for the question and then enter the code and description in the appropriate section of question 10. If none of the categories listed below adequately describes what you were studying or being trained in, use the "Other" category (code 238) and enter a brief description of what you were studying in the space provided on the questionnaire.

Code	Description
	Biological and Agricultural Sciences and Related Fields
101	Agriculture, business
102	Agriculture, general
103	Agronomy, field crops
104	Anatomy, histology
105	Animal physiology
106	Animal science
107	Bacteriology, virology, mycology, parasitology
108	Biochemistry
109	Biology, general
110	Biometrics and biostatistics
111	Biophysics
112	Botany, general
113	Cell biology
114	Dairy sciences (dairy husbandry)
115	Ecology
116	Embryology
117	Entomology
118	Farm management
119	Fish and game or wildlife management
120	Food science (food technology and processing, dairy manufacturing and technology, food industry)
121	Forestry
122	Genetics
123	Horticulture
124	Immunology
125	Marine biology
126	Microbiology
127	Molecular biology
128	Natural resources management
129	Neurosciences
130	Nutrition
131	Pathology, human and animal
132	Pathology, plant
133	Physiology, human and animal
134	Physiology, plant
135	Poultry sciences
136	Radiology
137	Soil sciences (soil management, soil conservation)
138	Toxicology
139	Zoology, general
140	Biological and agricultural sciences, other fields
	Education
141	Biological sciences education
142	Mathematics education
143	Physical sciences education
144	Social science education
145	Education, other fields
	Engineering
146	Aeronautical/astronautical, astronautical and related fields
147	Agricultural
148	Architectural
149	Bioengineering and biomedical engineering
150	Chemical, petroleum refining
151	Civil, construction, transportation
152	Electrical, electronics, communications
153	Engineering sciences, mechanics, physics
154	Engineering technologies
155	Environmental, sanitary, engineering
156	General or unified
157	Geological engineering
158	Geophysical engineering
159	Industrial
160	Mechanical
161	Metallurgical, metallurgy, ceramics
162	Mining, mineral, petroleum
163	Naval architecture and marine engineering
164	Nuclear engineering
165	Petroleum
166	Textile engineering
167	Engineering, other fields
	Health Fields
168	Medicine (human), osteopathy, podiatry, pharmacy, veterinary
169	Nursing (4 years or longer program)
170	Optometry
171	Pharmacy
172	Physiotherapy
173	Health fields, other (4 years or longer)

Code	Description
	Mathematical Sciences
174	Actuarial sciences
175	Applied mathematics
176	Computer science
177	Mathematics
178	Operations research/management sciences
179	Statistics
	Physical Sciences
180	Analytical chemistry
181	Astronomy
182	Astrophysics
183	Atmospheric sciences and meteorology
184	Atomic, molecular physics
185	Biochemistry
186	Chemistry, general
187	Earth sciences, general
188	Elementary particles and fields
189	Geology
190	Geochemistry
191	Geophysics and seismology
192	Inorganic chemistry
193	Metallurgy
194	Nuclear physics
195	Oceanography
196	Organic chemistry
197	Paleontology
198	Pharmaceutical chemistry
199	Physical chemistry
200	Physical sciences, general
201	Physics, general
202	Solid-state physics
203	Other earth sciences
204	Other physical sciences
	Psychology
205	Clinical
206	Counseling
207	Developmental
208	Educational
209	Experimental
210	Industrial/organizational
211	Physiological
212	Psychology, general
213	Psychometrics
214	Social
215	Psychology, other fields
	Social Sciences
216	Anthropology
217	Criminology
218	Economics, agricultural
219	Economics, except agricultural
220	Geography
221	Political science and government
222	Sociology
223	Social sciences, other fields
	Arts, Humanities, and Other Specialties
224	Architecture
225	Area studies
226	Arts, general
227	Business and commerce, including accounting, hotel and restaurant administration, and secretarial studies
228	English and journalism
229	Fine and applied arts, all fields
230	Foreign language and literature, all fields
231	History
232	Home economics, all fields
233	Law or prelaw
234	Library science
235	Military science, including merchant marine deck officers
236	Philosophy, all fields
237	Religion and theology, all fields
238	Other (Describe briefly in the appropriate item on questionnaire.)

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REFERENCE LIST B — KINDS OF BUSINESSES

This list is to be used in answering question 19 about the kind of business or industry for which you worked. Please scan the entire list, choose the appropriate answer for the question and enter the code and description from this list. If none of the categories listed below adequately describes the kind of business for which you worked, use the "Other" category (code 434).

Code	Description
	Manufacturing
401	Aircraft, aircraft engines, aircraft parts
402	Chemicals and allied products
403	Electrical machinery, equipment and supplies for the generation, storage, transformation, transmission and utilization of electrical energy
404	Electronic computers and computing equipment, and accounting, calculating and office machinery and equipment
405	Fabricated metal products (except ordnance, machinery, and transportation equipment)
406	Machinery (except electrical) including engines and turbines, farming and construction machinery, mining, metalworking and other manufacturing and service industry machines
407	Motor vehicles and motor vehicle equipment, including trucks, buses, automobiles, railroad locomotives, railroad cars, railroad equipment
408	Ordnance, including manufacture of arms, ammunition, tanks, and complete guided missiles, space vehicles, and parts
409	Petroleum and coal products, including petroleum refining
410	Primary metal industries, including smelting, refining, rolling, drawing, alloying, and manufacture of castings, forgings, and other basic metal products
411	Professional, scientific, and photographic equipment and supplies
412	Radio, television, and communication equipment and parts
413	Other manufacturing, including printing and publishing
	Educational Institutions
414	College or university (offering at least a Bachelor's degree)
415	Junior college or technical institute
416	Medical school
417	Other educational institutions
	Health Services
418	Hospital or clinic
419	Other medical and health services
	Other Kinds of Business
420	Agriculture, forestry, and fisheries
421	Business, repair, and personal services
422	Construction
423	Engineering, architectural, or surveying services
424	Museums, art galleries, and zoos
425	Private, non profit organizations other than educational institutions and hospitals
426	Professional and technical societies
427	Research institutions
428	Other professional services, excluding health and education
429	Finance, insurance, or real estate
430	Mining and petroleum extraction
431	Retail and wholesale trade
432	Transportation, communication, or other public utilities
433	U.S. Postal Service
434	Other *(Describe briefly in the applicable item on questionnaire)*
	Public Administration, excluding U.S. Postal Service (see code 433) (Include only uniquely governmental activities, such as U.S. Park Service, U.S. Air Force, State court, Department of Motor Vehicles, city building inspection, or city public welfare. For example: if you work for the U.S. Park Service, use code 436; on the other hand, if you work at a Veteran's Administration Hospital, use code 418. Hospital or clinic; if you work at a State university, use code 414. College or university; if you work for a county road building agency, use code 422, Construction; if you work in a Defense Department research laboratory, use code 427, Research institutions.)
435	Uniformed military service
436	Federal public administration
437	State public administration
438	Local public administration
439	Regional government
440	Other government (e.g., United Nations)

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REFERENCE LIST C – OCCUPATIONS

This list is to be used in answering questions 20 and 33 about your occupational and professional classification. Please scan the entire list, choose the appropriate entry and enter the code and description from this list. If you cannot find exactly the right entry, please choose the one that comes nearest to it. If none of the entries is at all appropriate, use the "Other" category (code 788) and enter a brief description in the space provided on the questionnaire. Note that codes 701 - 744 include college professors and instructors.

Code	Description
	Engineers, including college professors and instructors
701	Engineer, aeronautical, aerospace, or astronautical
702	Engineer, agricultural
703	Engineer, chemical
704	Engineer, civil or architectural
705	Engineer, electrical or electronic
706	Engineer, environmental or sanitary
707	Engineer, industrial
708	Engineer, marine engineer or naval architect
709	Engineer, mechanical
710	Engineer, metallurgical or materials
711	Engineer, mining or geological
712	Engineer, nuclear
713	Engineer, petroleum
714	Engineer, sales
715	Engineer, systems
716	Engineer, other fields *(Describe briefly in the applicable item on questionnaire.)*
	Computer Specialists, including college professors and instructors
717	Computer programmer
718	Computer scientist
719	Computer systems analyst
720	Other computer specialists *(Describe briefly in the applicable item on questionnaire.)*
	Mathematicians, Statisticians and other Mathematical Scientists, including college professors and instructors
721	Actuary, including actuarial mathematician
722	Mathematician
723	Operations research analyst
724	Statistician
725	Systems analyst, except computer systems or data processing (see code 719)
726	Other mathematical scientists *(Describe briefly in the applicable item on questionnaire.)*
	Physical Scientists, including college professors and instructors
727	Atmospheric scientist, meteorologist, space scientist
728	Chemist, except biochemist
729	Earth scientist, including geologist, geophysicist, geodesist, etc.
730	Oceanographer
731	Physicist, astronomer
732	Other physical scientists, e.g., geographer, environmental scientist, materials scientist, etc. *(Describe briefly in the applicable item on questionnaire.)*
	Biological Scientists, including college professors and instructors
733	Agricultural scientist, food scientist, fishery biologist
734	Biochemist
735	Biological scientist, life scientist, botanist, ecologist
736	Biophysicist
737	Forestry or conservation scientist, including foresters and conservationists
738	Medical scientist, excluding persons who are primarily medical practitioners (see Health Occupations)
739	Other biological scientists *(Describe briefly in the applicable item on questionnaire.)*
	Social Scientists, including college professors and instructors
740	Anthropologist
741	Economist, including market research analysts
742	Psychologist
743	Sociologist
744	Other social scientists, e.g., demographer, historian, political scientist, etc. *(Describe briefly in the applicable item on questionnaire.)*

Code	Description
	Health Occupations, including persons who are primarily practitioners. Persons engaged primarily in medical research, teaching, and similar activities use code 738, Medical scientist.
745	Dental hygienist
746	Medical technician
747	Physician or surgeon
748	Other health occupations, e.g., dentist, pharmacist, practical and registered nurse, etc. *(Describe briefly in the applicable item on questionnaire.)*
	Technicians and technologists, except medical and health
749	Designer, electronic parts
750	Designer, industrial
751	Designer, machine tools
752	Designer, other
753	Drafting occupations, including draftsman
754	Technician, architectural
755	Technician, biological and agricultural
756	Technician, construction and highway
757	Technician, electrical and electronic
758	Technician, industrial engineering
759	Technician, mechanical engineering
760	Technician, other engineering
761	Technician, surveying and mapping (Surveyors, see code 787)
762	Technician, other science
763	Technician, other fields *(Describe briefly in the applicable item on questionnaire.)*
	Teachers
764	Teacher, elementary school
765	Teacher, secondary school
766	Teacher, college and university teacher of non-engineering and non-science subjects (Engineering and science teachers, see codes 701 - 744.)
	Administrators, Managers, and Officials, excluding farm
767	Administrator or manager, production and operations
768	Administrator or manager, scientific and technical research and development
769	Administrator, manager, or official, all others, excluding self-employed
770	College president or dean
771	Self-employed proprietor
772	Urban and regional planners
	All other occupations
773	Accountant, except financial analyst
774	Administrative support occupations, including clerical work (such as bookkeeper, secretary, etc.)
775	Clergy
776	Farmer (owner, manager, tenant, or farm laborer)
777	Financial analyst
778	Firefighter or police
779	Laborer, except farm
780	Lawyer or judge
781	Librarian
782	Merchant or shopkeeper, self-employed
783	Operator or fabricator (such as assembler, welder, truck driver, etc.)
784	Postal worker
785	Precision production, craft, and repair occupations (such as carpenter, electrician, mechanic, repair worker, etc.)
786	Sales occupations, excluding sales engineer
787	Surveyor
788	Other occupations, not specified above *(Describe briefly in the applicable item on questionnaire.)*

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1981 SURVEY OF DOCTORATE RECIPIENTS

OMB No. 3145-0020

CONDUCTED BY THE NATIONAL RESEARCH COUNCIL WITH THE SUPPORT OF THE NATIONAL SCIENCE FOUNDATION, THE NATIONAL ENDOWMENT FOR THE HUMANITIES, THE NATIONAL INSTITUTES OF HEALTH, AND THE DEPARTMENT OF ENERGY

NOTE: THIS INFORMATION IS SOLICITED UNDER THE AUTHORITY OF THE NATIONAL SCIENCE FOUNDATION ACT OF 1950, AS AMENDED. ALL INFORMATION YOU PROVIDE WILL BE TREATED AS CONFIDENTIAL, WILL BE SAFEGUARDED IN ACCORDANCE WITH THE PROVISIONS OF THE PRIVACY ACT OF 1974, AND WILL BE USED FOR STATISTICAL PURPOSES ONLY. INFORMATION WILL BE RELEASED ONLY IN THE FORM OF STATISTICAL SUMMARIES OR IN A FORM WHICH DOES NOT IDENTIFY INFORMATION ABOUT ANY PARTICULAR PERSON. YOUR RESPONSE IS ENTIRELY VOLUNTARY AND YOUR FAILURE TO PROVIDE SOME OR ALL OF THE REQUESTED INFORMATION WILL IN NO WAY ADVERSELY AFFECT YOU.

If your name and address are incorrect, please enter correct information below.

_____

_____

_____

_ _ _ _ _ - _ _ _ _

INCLUDE NEW NINE-DIGIT ZIP CODE IF KNOWN (10)

If there is an alternate address through which you can always be reached, please provide it on the line below.

_____ (11)

c/o Number Street City State ZIP Code

1a. How many full-time equivalent years of professional work experience have you had? _____ Year(s) (12-13)

b. Since receiving the doctorate, how many full-time equivalent years of professional work experience have you had? _____ Year(s) (14-15)

c. Since receiving the doctorate, how many full-time equivalent years of work experience, if any, involved teaching? _____ Year(s) (16-17)

2. What was your employment status (includes postdoctoral appointment*) during FEBRUARY 1981? ☐ Circle your selection and enter number from below (18)

1. Employed full-time (Skip to Question #4)
2. Employed part-time
   If you were employed part-time, were you seeking full-time employment? ☐ Yes ☐ No (19)
3. Postdoctoral appointment*
   If you held a postdoctoral appointment, was it ☐ full-time (Skip to Question #4) ☐ part-time (20)
4. Unemployed and seeking employment
5. Not employed and not seeking employment
6. Retired and not employed

(Skip to Question #20)

7. Other, specify _____

*Temporary appointment in academia, industry or government, the primary purpose of which is to provide for continued education or experience in research.

3. If you were employed part-time during FEBRUARY 1981, what was the MOST important reason for being in that position? ☐ Enter number from below (21)

1. Part-time employment preferred
2. Full-time position not available
3. Constraints due to family or marital status
4. Other, specify _____

4. From the Degree and Employment Specialties List on page 4 select and enter both the number and title of the employment specialty most closely related to your principal employment or postdoctoral appointment during FEBRUARY 1981. Write in your specialty if it is not on the list.

_____ (22-24)

Number Title of Employment Specialty

5. If you were employed during FEBRUARY 1981 in a specialty field other than your field of Ph.D., what was the MOST important reason for being in that position? ☐ Enter number from below (25)

1. Better pay
2. More attractive career options
3. Preferred specific geographic location
4. Constraints due to family or marital status
5. Position in Ph.D. field not available
6. Promoted out of position in Ph.D. field
7. Other, specify _____

6. Please give the name of your principal employer (company, organization, postdoctoral institution, etc. or, if self employed, write "self") and actual place of employment during FEBRUARY 1981.

_____ (26-31)

Name of Employer

_____

Number Street

_____

City State

_____ (32-40)

ZIP Code

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7. **Which category below best describes the type of organization of your principal employment OR postdoctoral appointment during FEBRUARY 1981?**

Enter number from below (41-42)

1. Business or industry (including self-employed)
2. Junior college, 2-year college, technical institute
3. Medical school (including university affiliated hospital or medical center)
4. 4-year college
5. University, other than medical school
6. Elementary or secondary school system
7. Private foundation
8. Hospital or clinic
9. U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA
10. U.S. government, civilian employee
11. State government
12. Local or other government, specify: _____
13. Nonprofit organization, other than those listed above
14. Other, specify _____

8. **What were your primary and secondary work activities during FEBRUARY 1981? (Enter number from the list provided below)**

Primary (43-44) Secondary (45-46)

1. Teaching
2. Basic research
3. Applied research
4. Development of equipment, products, systems, data
5. Design
6. Writing
7. Editing
8. Professional services to individuals

Management or administration of:

9. Research and development
10. Educational programs
11. Other
12. Consulting
13. Production
14. Cultural resources
15. Archival work
16. Curatorial work
17. Performing arts
18. Quality control, inspection, testing
19. Sales, marketing, purchasing, estimating
20. Other, specify _____

9. **What was the basic annual salary* associated with your principal professional employment during FEBRUARY 1981? If you were on a postdoctoral appointment (see question #2 for definition), what was your stipend plus allowances?** $ _____ per year (47-49)

Check whether salary was for ☐ 9-10 months or ☐ 11-12 months (50)

*Basic salary is your annual salary before deductions for income tax, social security, retirement, etc., but does not include bonuses, overtime, summer teaching, or other payment for professional work.

10a. **What was your basic annual salary* for the year ending December 31, 1980?** $ _____ per year (51-53)
Check whether salary was for ☐ 9-10 months or ☐ 11-12 months (54)

b. **What was your gross professional income† for the year 1980?** $ _____ per year (55-57)

†Gross professional income is all payments received for professional activities including basic salary before deductions plus bonuses, consulting fees, honoraria, royalties, rental and subsistence allowances, etc.

11. **What percentage of your professional work time did you devote to each of the following activities during FEBRUARY 1981?** (Total should equal 100%)

%

1. _____ (58) Management or administration of R&D
2. _____ (60) Management or administration of educational programs
3. _____ (62) Management or administration of other programs
4. _____ (64) Teaching
5. _____ (66) Applied research
6. _____ (68) Basic research
7. _____ (70) Consulting
8. _____ (72) Writing/editing
9. _____ (74) Development/design
10. _____ (76) Cultural resources
11. _____ (78) Other, specify _____

12. **If you were employed by an academic institution during FEBRUARY 1981, did you hold a tenured position?** 1 ☐ Yes 2 ☐ No (10)

If YES, what year was tenure granted? _____ (11-12)

If NO, did you hold a tenure-track position? 1 ☐ Yes 2 ☐ No (13)

13. **If you were employed by an academic institution during FEBRUARY 1981, what was the rank of your position?** Enter number from below (14)

Faculty

1. Professor
2. Associate professor
3. Assistant professor
4. Instructor
5. Administrator
6. Other, specify _____ *Title*

Non-Faculty

7. Teaching staff
8. Research staff
9. Other, specify _____ *Title*

14. **Was any of your work during FEBRUARY 1981 supported or sponsored by U.S. Government funds?**

1 ☐ Yes 2 ☐ No 3 ☐ Don't Know (15)

If YES, which federal agencies or departments were supporting the work?

Enter number(s) from the List of Federal Supporting Agencies on page 4 _____ (16-39)

15. **How important was your DOCTORAL degree in enabling you to attain your present position?** (Check only one.)

1 ☐ Essential qualification
2 ☐ Helpful, but not essential
3 ☐ Unimportant
4 ☐ Cannot ascertain (40)

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16. **Listed below are selected topics of national interest. If you devoted a proportion of your professional time which you considered significant to any of these problem areas during FEBRUARY 1981, please give the corresponding number of the ONE on which you spent the MOST time.**

☐ Enter number from below (41-42)

1. Energy or fuel
2. Health
3. Defense
4. Environ. protection, pollution control
5. Education (other than teaching)
6. Space
7. Crime prevention and control
8. Food and other agricultural products
9. Natural resources, other than fuel or food
10. Community development and services
11. Housing (planning, design, construction)
12. Transportation, communications
13. Cultural life
14. Other area, specify _____

If you did not select energy or fuel (category #1) in question #16, please skip to question #20.

17. **From the list below, give the corresponding number of the ONE energy source that involved the LARGEST proportion of your energy-related work during FEBRUARY 1981.**

☐ Enter number from below (43)

1. Coal and coal products
2. Petroleum (including oil shale and tar sands) or natural gas
3. Fission
4. Fusion
5. Hydroenergy
6. Direct solar (including space and water heating, thermal, electric)
7. Indirect solar (winds, tides, biomass, etc.)
8. Geothermal
9. Other, specify _____

18. **Please read the following list of energy-related activities and give the corresponding number(s) from the list below of the activity(ies) in which you were engaged during FEBRUARY 1981.** Enter number(s) from below _____ (44-63)

1. Exploration
2. Extraction (gas, oil, mining)
3. Manufacture of energy-related components or products
4. Fuel processing (including refining and enriching)
5. Electric power generation
6. Transportation, transmission, distribution of fuel or energy
7. Energy storage
8. Energy utilization, management
9. Fuel reprocessing or disposal
10. Energy conservation
11. Environmental impact (health, economic, etc.)
12. Education, training
13. Research and development
14. Other, specify _____

19. **Please enter the number 1-14 from question #18 that BEST describes the activity in which you spent MOST of your energy-related time.** ☐ (64-65)

20. **What is the major field of your doctorate? Please use the Specialties List on page 4. Please provide the name of the institution where the degree was earned and the year the degree was granted.**

Ph.D. Field (66-68) Month and Year Granted (69-71) Institution (72-77)

21. **Date of Birth**

Mo. Day Year

___ ___ ___ (10-14)

22. **Citizenship**

1 ☐ U.S. Native Born
2 ☐ U.S. Naturalized
3 ☐ Non-U.S., Immigrant (Perm. Res.)
4 ☐ Non-U.S., Immigrant (Temp. Res.) (15)

IF NON-U.S., specify country of citizenship _____ (16-17)

23a. **What is your marital status?**

1 ☐ Now Married
2 ☐ Widowed
3 ☐ Never Married
4 ☐ Divorced, separated (18)

23b. **Do you have any children living with you who are:**

Under 6 years of age? 1 ☐ Yes How many? _____ 2 ☐ No (19-20)

Between 6 and 18 years of age? 1 ☐ Yes How many? _____ 2 ☐ No (21-22)

24. **Are you physically handicapped?** 1 ☐ Yes 2 ☐ No (23) If Yes, enter number(s) from below _____ (24-27)

1. Visual 2. Auditory 3. Ambulatory 4. Other, specify _____

25a. **What is your racial background?**

1 ☐ American Indian or Alaskan Native
2 ☐ Asian or Pacific Islander
3 ☐ Black
4 ☐ White (28)

25b. **Is your ethnic heritage Hispanic?**

1 ☐ Yes
2 ☐ No (29)

If Yes, is it:
1 ☐ Mexican-American
2 ☐ Puerto Rican
3 ☐ Other Hispanic (30)

Thank you for completing this questionnaire. Please return the completed form in the enclosed envelope to the Commission on Human Resources, JH638, National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418.

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DEGREE AND EMPLOYMENT SPECIALTIES LIST

MATHEMATICAL SCIENCES

000 - Algebra
010 - Analysis & Functional Analysis
020 - Geometry
030 - Logic
040 - Number Theory
052 - Probability
055 - Math. Statistics (see also 544, 670, 725, 727)
060 - Topology
082 - Operations Research (see also 478)
095 - Applied Mathematics
089 - Combinatorics & Finite Mathematics
091 - Physical Mathematics
098 - Mathematics, General
099 - Mathematics, Other*

COMPUTER SCIENCES

071 - Theory
072 - Software Systems
073 - Hardware Systems
074 - Intelligent Systems
079 - Computer Sciences, Other (see also 437, 476)

PHYSICS & ASTRONOMY

101 - Astronomy
102 - Astrophysics
110 - Atomic & Molecular
120 - Electromagnetism
130 - Mechanics
132 - Acoustics
134 - Fluids
135 - Plasma
136 - Optics
139 - Thermal
140 - Elementary Particles
150 - Nuclear Structure
160 - Solid State
198 - Physics, General
199 - Physics, Other*

CHEMISTRY

200 - Analytical
210 - Inorganic
215 - Synthetic Inorganic & Organometallic
220 - Organic
225 - Synthetic Organic & Natural Products
230 - Nuclear
240 - Physical
245 - Quantum
250 - Theoretical
255 - Structural
260 - Agricultural & Food
265 - Thermodynamics & Material Properties
270 - Pharmaceutical
275 - Polymers
280 - Biochemistry (see also 540)
285 - Chemical Dynamics
298 - Chemistry, General
299 - Chemistry, Other*

EARTH, ENVIRONMENTAL AND MARINE SCIENCES

301 - Mineralogy, Petrology
305 - Geochemistry
310 - Stratigraphy, Sedimentation
320 - Paleontology
330 - Structural Geology
341 - Geophysics (Solid Earth)
350 - Geomorph. & Glacial Geology
391 - Applied Geol., Geol. Engr. & Econ. Geol.
395 - Fuel Tech. & Petrol. Engr. (see also 479)
360 - Hydrology & Water Resources
370 - Oceanography
397 - Marine Sciences, Other*
381 - Atmospheric Physics & Chemistry
382 - Atmospheric Dynamics
383 - Atmospheric Sciences, Other*
388 - Environmental Sciences, General (see also 480, 528)
389 - Environmental Sciences, Other*
358 - Earth Sciences, General
399 - Earth Sciences, Other*

ENGINEERING

400 - Aeronautical & Astronautical
410 - Agricultural
415 - Biomedical
420 - Civil
430 - Chemical
435 - Ceramic
437 - Computer
440 - Electrical
445 - Electronics
450 - Industrial & Manufacturing
455 - Nuclear
460 - Engineering Mechanics
485 - Engineering Physics
470 - Mechanical
475 - Metallurgy & Phys. Met. Eng.
476 - Systems Design & Systems Science (see also 072, 073, 074)
478 - Operations Research (see also 082)
479 - Fuel Technology & Petrol. Engr. (see also 395)
480 - Sanitary & Environmental
486 - Mining
497 - Materials Science
498 - Engineering, General
499 - Engineering, Other*

AGRICULTURAL SCIENCES

500 - Agronomy
501 - Agricultural Economics
502 - Animal Husbandry
503 - Food Science and/or Technology (see also 573)
504 - Fish & Wildlife
505 - Forestry
506 - Horticulture
507 - Soils & Soil Science
519 - Animal Science & Animal Nutrition
511 - Phytopathology
518 - Agriculture, General
519 - Agriculture, Other*

MEDICAL SCIENCES

520 - Medicine & Surgery
522 - Public Health & Epidemiology
523 - Veterinary Medicine
524 - Hospital Administration
526 - Nursing
527 - Parasitology
528 - Environmental Health
534 - Pathology
536 - Pharmacology
537 - Pharmacy
538 - Medical Sciences, General
539 - Medical Sciences, Other*

BIOLOGICAL SCIENCES

540 - Biochemistry (see also 280)
542 - Biophysics
543 - Biomathematics
544 - Biometrics and Biostatistics (see also 055, 670, 725, 727)
545 - Anatomy
546 - Cytology
547 - Embryology
548 - Immunology
550 - Botany
560 - Ecology
562 - Hydrobiology
564 - Microbiology & Bacteriology
566 - Physiology, Animal
567 - Physiology, Plant
569 - Zoology
570 - Genetics
571 - Entomology
572 - Molecular Biology
573 - Food Science and/or Technology (see also 503)
574 - Behavior/Ethology
576 - Nutrition & Dietetics
578 - Biological Sciences, General
579 - Biological Sciences, Other*

PSYCHOLOGY

600 - Clinical
610 - Counseling & Guidance
620 - Developmental & Gerontological
630 - Educational
635 - School Psychology
641 - Experimental
642 - Comparative
643 - Physiological
650 - Industrial & Personnel
660 - Personality
670 - Psychometrics (see also 055, 544, 725, 727)
680 - Social
698 - Psychology, General
699 - Psychology, Other*

SOCIAL SCIENCES

700 - Anthropology
703 - Archeology
708 - Communications*
709 - Linguistics
710 - Sociology
720 - Economics (see also 501)
725 - Econometrics (see also 055, 544, 670, 727)
727 - Social Statistics (see also 055, 544, 670, 725)
740 - Geography
745 - Area Studies*
751 - Political Science
752 - Public Administration
755 - International Relations
760 - Criminology & Criminal Justice
770 - Urban & Regional Planning
775 - History & Philosophy of Science
798 - Social Sciences, General
799 - Social Sciences, Other*

HUMANITIES

802 - History & Criticism of Art
804 - History, American
805 - History, European
806 - History, Other*
808 - American Studies
809 - Theater & Theater Criticism
830 - Music
831 - Speech as a Dramatic Art (see also 885)
834 - Philosophy
836 - Comparative Literature
891 - Library & Archival Sciences
878 - Humanities, General
879 - Humanities, Other*

LANGUAGES & LITERATURE

811 - American
812 - English
821 - German
822 - Russian
823 - French
824 - Spanish & Portuguese
826 - Italian
827 - Classical*
829 - Other Languages*

EDUCATION & OTHER PROFESSIONAL FIELDS

801 - Art, Applied
833 - Religion
881 - Theology
882 - Business Administration
883 - Home Economics
884 - Journalism
885 - Speech & Hearing Sciences (see also 831)
886 - Law, Jurisprudence
887 - Social Work
897 - Professional Field, Other*
938 - Education (other than teaching in a field listed above)
899 - Other Fields*

*Identify the specific field in the space on the questionnaire.

LIST OF FEDERAL SUPPORTING AGENCIES (For use with #14)

1. Agency for International Development
2. Environmental Protection Agency
3. National Aeronautics & Space Administration
4. National Endowment for the Arts
5. National Endowment for the Humanities
6. National Science Foundation
7. Nuclear Regulatory Commission
8. Smithsonian Institution
9. Department of Agriculture
10. Department of Commerce
11. Department of Defense
12. Department of Energy
13. National Institutes of Health (DHHS)
14. Alcohol, Drug Abuse & Mental Health Administration (NIAA, NIDA, NIMH)
15. Other DHHS, specify_____
16. National Institute of Education (E.D.)
17. Other Department of Education (E.D.)
18. Department of Housing and Urban Development
19. Department of the Interior
20. Department of Justice
21. Department of Labor
22. Department of State
23. Department of Transportation
24. Other agency or department, specify_____
25. Don't know which agency

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INSTITUTE FOR SURVEY RESEARCH
TEMPLE UNIVERSITY
-Of The Commonwealth System Of Higher Education-
PHILADELPHIA, PENNSYLVANIA 19122

STUDY #518-305-01
FALL/WINTER 1982

OMB No.: 3145-0032
Expires: December 1983

1982 SURVEY OF SCIENCE AND ENGINEERING GRADUATES

NATIONAL SCIENCE FOUNDATION
AND
U.S. DEPARTMENT OF ENERGY

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be treated as confidential and will be used for statistical purposes only. Information will be released only in the form of statistical summaries from which it will be impossible to identify any particular person. Your response is entirely voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.

NAME: _____

ADDRESS: _____

_____

TELEPHONE: (_____) _____

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DEGREE AND EMPLOYMENT SPECIALTY LIST

Agriculture

803 Agricultural economics
013 Agronomy
014 Animal, dairy, poultry, sciences
015 Farm and range management
016 Fish, game and wildlife management
017 Food sciences
018 Forestry and related sciences
019 Horticulture
020 Natural resources management
021 Soil science
090 Agricultural sciences, other

Biological Sciences

211 Anatomy, histology
213 Biochemistry
214 Biophysics
215 Botany
221 Cell and molecular biology
216 Entomology
226 Embryology
217 Genetics
218 Immunology
219 Marine biology
220 Microbiology, bacteriology
227 Neurosciences
222 Nutrition
228 Parasitology
223 Pathology, human, animal, plant
224 Physiology, human, animal, plant
229 Radiobiology
230 Toxicology
225 Zoology
290 Biological sciences, other

Education

413 Biological sciences education
414 Engineering education
417 Mathematics education
421 Physical sciences education
425 Social science education
490 Education, other

Engineering

511 Aerospace, aeronautical, astronautical
512 Agricultural
513 Architectural
514 Bioengineering and biomedical engineering
515 Chemical
516 Civil, construction, and transportation
723 Computer
517 Electrical, electronic, and communication
529 Engineering science
519 Environmental and sanitary
520 Geological
521 Industrial
530 Materials
522 Mechanical
523 Metallurgical
524 Mining and mineral
525 Naval architecture and marine
526 Nuclear
531 Ocean
527 Petroleum
751 Operations research/management sciences
590 Engineering, other

Mathematical Sciences

711 Actuarial science
723 Computer sciences
750 Mathematics
751 Operations research/management sciences
713 Statistics
723 Computer and information sciences
780 Mathematics, other

Physical Sciences

720 Astronomy
721 Atmospheric sciences and meteorology
213 Biochemistry
722 Chemistry
741 Earth sciences and geology
733 Metallurgy
742 Oceanography
731 Physics
790 Physical sciences, other

Social Sciences

811 Anthropology
812 Criminology
813 Economics (except agricultural)
814 Geography
118 Linguistics
817 Political science and government
818 Psychology (except clinical)
821 Sociology
822 Urban studies
890 Other social sciences

Health Sciences

611 Clinical psychology
612 Dentistry
614 Hospital and health care administration
615 Medicine or pre-medicine
616 Nursing
617 Pharmacology
618 Pharmacy
690 Other health areas

Arts, Humanities and Other Specialties

910 Area and ethnic studies
911 Architecture and environmental design
110 Arts and letters, general
310 Business and commerce
115 English and journalism
114 Fine and applied arts
116 Foreign language and literature, all fields
815 History
912 Home economics, all fields
913 Law and prelaw
915 Military science, including merchant marine deck officer
816 Philosophy
819 Religion and theology
820 Social work
999 Other specialties

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INSTRUCTIONS FOR COMPLETING THIS QUESTIONNAIRE

In constructing this questionnaire we have tried to provide response categories for most answers. If the response categories are not adequate for you to answer a question correctly, please write your answer in the question box. If you are not certain of the correct response, please give us your best estimate or guess.

There are basically two types of questions: the closed-end questions, where response categories have been provided and you are asked to mark a box; and open-end questions, where you are asked to fill in the information sought. In addition, in some of the questions you are asked to fill in "code numbers" either from the list on page 2 or from a preceding question.

An example of each type, with sample answers, is shown below.

1. Do you subscribe to any periodical journals or magazines?

   1. [X] Yes *(GO TO QUESTION 2)*
   2. [ ] NO *(SKIP TO QUESTION 4)*

2. Which of the following journals or magazines do you receive? *(MARK AS MANY AS APPLY)*

   01. [X] Newsweek
   02. [ ] Time
   03. [ ] Life
   04. [X] Science
   05. [X] Scientific American
   06. [X] Other, *Specify:* Smithsonian

3. Which of the journals marked in question 2 most relates to the kind of work you do? *(ENTER THE APPROPRIATE CODE NUMBER FROM QUESTION 2)*

   [0] [4]

4. What professional society or association do you belong to?

   National Association of Mechanical Engineers

Please answer all the questions that apply to you and follow directions which may ask you to skip certain questions. In the absence of instructions, always go to the next question. Even if you feel only part of the questionnaire applies to you, or there are some questions you cannot answer, please return the entire questionnaire.

We appreciate your participation and thank you for completing this questionnaire.

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PART I. DEMOGRAPHIC CHARACTERISTICS

1. In what month and year were you born? 1/8

_____ (MONTH) _____ (YEAR)

2. Are you: 12

1. ☐ Male 2. ☐ Female

3. Are you: 13

1. ☐ U.S. citizen *(GO TO QUESTION 4)*
2. ☐ Non-U.S. citizen, immigrant (permanent resident)
3. ☐ Non-U.S. citizen, nonimmigrant (temporary resident)

3a. If non-U.S. citizen, of which country are you a citizen?

_____ (COUNTRY)

4. Are you: 16

1. ☐ American Indian or Alaskan Native
2. ☐ Asian or Pacific Islander
3. ☐ Black
4. ☐ White
5. ☐ Other, *please specify:*

_____

5. Are you of Spanish/Hispanic origin or descent? 17

1. ☐ Yes → 2. ☐ Mexican-American 3. ☐ Puerto Rican 4. ☐ Other Hispanic
5. ☐ No

6. As of May 9, 1982, were you: 18

1. ☐ Married 2. ☐ Widowed
3. ☐ Separated 4. ☐ Divorced
5. ☐ Never married

7. As of May 9, 1982, did you have any children living with you? 19

1. ☐ Yes → 2. ☐ Under 6 years of age
3. ☐ 6-17 years of age
4. ☐ No

8. Are you physically handicapped? 20

1. ☐ Yes *(GO TO QUESTION 9)*
2. ☐ No *(SKIP TO QUESTION 10)*

9. What is the nature of your handicap(s)? *(MARK AS MANY AS APPLY)* 21

1. ☐ Visual 2. ☐ Ambulatory
4. ☐ Auditory 8. ☐ Other, *specify:*

_____

10. Are you a student, currently attending a college or university? 23

1. ☐ Yes → 2. ☐ Student, full-time
3. ☐ Student, part-time
4. ☐ No

In the next section (Question 11) beginning with the most recent and working back, list on the appropriate line each institution beyond the high school level from which you have obtained or are obtaining formal training leading to an academic degree.

Designate degrees by abbreviations, for example, AA, BA, MA, MS, Ph.D., LLB, MD, etc. Use a separate line for each degree granted or worked for, or for any change in major field of specialized study. Refer to the list on page 2 for the code number and the description of major fields. Do NOT include correspondence courses, on-the-job training, apprenticeship, or training at an employer's training school.

If you need more space, attach a separate sheet of paper and give the same type of information for each additional school listed.

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PART II. EDUCATION AND TRAINING

(11a.) College, university or other post high school institution	(b.) Type of degree worked for, if any (BA, MA, etc.)	(c.) Year degree awarded	(d.) Major field *(ENTER CODE AND DESCRIPTION FROM LIST ON PAGE 2)*
MOST RECENT: 24 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	28 *(DEGREE)* OR ☐ None	30 *19*____ OR ☐ None	32 *(CODE)* *(DESCRIPTION)*
SECOND TO LAST: 35 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	39 *(DEGREE)* OR ☐ None	41 *19*____ OR ☐ None	43 *(CODE)* *(DESCRIPTION* *(DESCRIPTION)*
THIRD TO LAST: 46 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	50 *(DEGREE)* OR ☐ None	52 *19*____ OR ☐ None	54 *(CODE)* *(DESCRIPTION)*
FOURTH TO LAST: 57 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	61 *(DEGREE)* OR ☐ None	63 *19*____ OR ☐ None	65 *(CODE)* *(DESCRIPTION)*
FIFTH TO LAST: 68 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	72 *(DEGREE)* OR ☐ None	74 *19*____ OR ☐ None	76 *(CODE)* *(DESCRIPTION)*

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PART III. EMPLOYMENT STATUS

12. During the week of May 9, 1982, were you: 2/8

1. ☐ Working full-time (35 hours or more at least in one position) *(SKIP TO QUESTION 16)*
2. ☐ Working part-time *(GO TO QUESTION 13)*
3. ☐ Not working, but seeking work *(SKIP TO PART IV ON PAGE 7)*
4. ☐ Not working and not seeking work *(SKIP TO QUESTION 14)*

13. Were you seeking full-time work? 9

1. ☐ Yes
2. ☐ No

(SKIP TO QUESTION 16)

14. Did you look for work at any time during the three weeks prior to the week of May 9, 1982; that is, between April 18 and May 8, 1982? 10

1. ☐ Yes 2. ☐ No

15. What was the main reason you were not working or not seeking work during the week of May 9, 1982? 11

(MARK ONLY ONE BOX)

1. ☐ On layoff from a job
2. ☐ On vacation or otherwise temporarily absent from a job for health or personal reasons

(GO TO QUESTION 16)

3. ☐ Retired
4. ☐ Student
5. ☐ Family responsibilities
6. ☐ Chronic illness or permanent disability
7. ☐ Could not find work or believed no jobs available in my particular field
8. ☐ Did not want to work
9. ☐ New job to begin within 30 days
10. ☐ Waiting for school to begin
11. ☐ Other, *please specify:*

(SKIP TO PART IV ON PAGE 7)

16. During the week of May 9, 1982, were you working at (or on layoff or temporarily absent from) a position related to the natural sciences, social sciences, or engineering? 13

1. ☐ Yes *(SKIP TO PART IV ON PAGE 7)*
2. ☐ No *(GO TO QUESTION 17)*

17. What was the most important reason for taking that position? 14

(MARK ONLY ONE BOX)

1. ☐ Preferred nonscience or nonengineering position
2. ☐ Promoted out of science or engineering position
3. ☐ Pay was better in nonscience or nonengineering position
4. ☐ Locational preference
5. ☐ Science or engineering position not available
6. ☐ Other reason, *please specify:*

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PART IV. EMPLOYMENT PROFILE

☐ *If you have never been employed, nor self-employed, please mark this box and SKIP TO QUESTION 39. Otherwise, CONTINUE with the instructions below.*

In this part of the questionnaire, we are asking questions about the job you held during the week of May 9, 1982, or your most recent job before May 9. Please include any employment, including a military service job, not only a scientific or technical job. If you had more than one regular job during the week of May 9, record the one which you consider your principal employment.

16

(18.) For whom did you work? What is the name of the company, business or the government agency you worked for?

_____

Check here if self-employed ☐

19

(19) Where were you employed, that is, in what city, county and state?

_____ _____ _____

(CITY OR TOWN) *(COUNTY)* *(STATE OR FOREIGN COUNTRY)*

25

(20.) Which of the categories below best describes the type of organization of your principal employment or post-doctoral appointment? *(MARK ONLY ONE BOX)*

01 ☐ Self-employed
02 ☐ Business or industry
03 ☐ Junior college, 2-year college, technical institute
04 ☐ Medical school
05 ☐ 4-year college or university, other than medical school
06 ☐ Elementary or secondary school system
07 ☐ Hospital or clinic
08 ☐ Nonprofit organization, other than hospital, clinic or educational institution
09 ☐ U.S. military service, active duty, or Commissioned Corps, such as USPHS, NOAA, etc.
10 ☐ U.S. Government, civilian employee
11 ☐ State government
12 ☐ Local or other government *(SPECIFY):* _____

_____

13 ☐ International agency
14 ☐ Other *(SPECIFY):* _____

_____

27

(21.) If you had more than one job during the week of May 9, 1982, enter the category from the above list that is most appropriate for your second job.
(ENTER THE APPROPRIATE CODE NUMBER, 01-14, FROM Q. 20 ABOVE)

☐☐ ☐ Did not have a second job the week of May 9, 1982

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29

(22.) From the activities listed below, select your primary and secondary work activities for your principal job as reported in question 18, in terms of time devoted for a typical week.
(ENTER THE APPROPRIATE CODE NUMBER 01-16 FOR EACH)

☐☐ Primary activity ☐☐ Secondary activity

01 Management or administration of research or development
02 Management or administration of other than research and development
03 Teaching and training - preparing and teaching courses, guiding and counseling students or trainees
04 Basic research - that is, study directed toward gaining scientific knowledge primarily for its own sake
05 Applied research - that is, study directed toward gaining scientific knowledge in an effort to meet a recognized need
06 Development - product, process, and technical development. That is, direction of knowledge gained from research toward production of useful materials, devices, systems and methods
07 Report and technical writing, editing, information retrieval
08 Clinical diagnosis
09 Design of equipment, processes, models
10 Quality control, testing, evaluation, or inspection
11 Operations - production, maintenance, construction, installation
12 Distribution - sales, traffic, purchasing, customer and public relations
13 Statistical work - survey work, forecasting, statistical analysis
14 Consulting
15 Computer applications
16 Other activities *(SPECIFY)*: _____

_____

33

(23.) During a typical week in your principal job reported in question 18, what percent of working time do you devote to each of the following activities?
(ENTRIES SHOULD TOTAL 100%)

_____% Management & administration

_____% Basic research

_____% Applied research

_____% Development

_____% Teaching

_____% Operations, production

_____% Other

100.0 % TOTAL

54

(24.) From the Degree and Employment Specialty List on page 2, select and enter the number and title of the specialty most closely related to your principal employment (reported in question 18) during the week of May 9, 1982.
(PLEASE WRITE IN YOUR SPECIALTY IF IT IS NOT ON THE LIST)

Number: ☐☐☐

Title : _____

_____

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57

(25.) For your principal job reported in question 18, what is the basic annual salary you currently earn?
(Do not include bonuses, overtime, summer teaching or other payments for secondary jobs)

$_____.00 per year

☐ Not currently employed at that job.

62

(26.) If academically employed in your principal job, is your salary for:

☐ 9-10 months, OR ☐ 11-12 months?

63

(27.) What was your total professional income in 1981 including basic annual salary, bonuses, overtime, summer teaching, consulting fees, etc.?

$_____.00 per year

☐ None

68

(28.) What was your basic annual salary in 1981 from the principal job you held longest, excluding bonuses, overtime, summer teaching, consulting fees, etc.?

$_____.00 per year

☐ None

73

(29.) During the week of May 9, 1982, was any of your work at your principal job supported by U.S. Government funds?

1. ☐ Yes → *(GO TO QUESTION 30)*
2. ☐ No
3. ☐ Don't know → *(SKIP TO Q. 31)*

3/8

(30.) Which of the following agencies or departments were supporting your work?
(MARK AS MANY AS APPLY)

1. ☐ AID--Agency for International Development
2. ☐ Department of Agriculture
3. ☐ Department of Commerce
4. ☐ Department of Defense
5. ☐ Department of Energy
6. ☐ Department of Education (NIE, OE, NCES)
7. ☐ Department of Health and Human Services (DHHS old HEW)
8. ☐ Department of Housing and Urban Development (HUD)
9. ☐ Department of the Interior
10. ☐ Department of Justice
11. ☐ Department of Labor (DOL)
12. ☐ Department of Transportation
13. ☐ EPA--Environmental Protection Agency
14. ☐ NASA--National Aeronautics and Space Administration
15. ☐ NSF--National Science Foundation
16. ☐ Nuclear Regulatory Commission
17. ☐ Other, *specify:* _____
18. ☐ Don't know source agency

26

(31.) The following list contains selected areas of national interest. Indicate the one area to which you devote(d) the most professional time during a typical week at the job reported in question 18.

1. ☐ Energy and fuel *(GO TO Q. 32)*
2. ☐ Health
3. ☐ Environment
4. ☐ Education
5. ☐ Teaching
6. ☐ Other education
7. ☐ National defense
8. ☐ Crime prevention and control
9. ☐ Food production and technology
10. ☐ Other mineral resources
11. ☐ Community development and service
12. ☐ Housing (planning, design, construction)
13. ☐ None of the above

(SKIP TO QUESTION 36)

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28

(32.) What is your best estimate of the percent of your professional time that you devote(d) to energy and fuel during a typical week?

1. ☐ 100 percent
2. ☐ 75 to 99 percent
3. ☐ 50 to 74 percent
4. ☐ 25 to 49 percent
5. ☐ 24 percent or less

29

(33.) From the list below, indicate the one energy source that involves(d) the largest proportion of your energy-related work during a typical week.

1. ☐ Coal and coal products
2. ☐ Petroleum (including oil shale and tar sands) or natural gas
3. ☐ Fission
4. ☐ Fusion
5. ☐ Hydroenergy
6. ☐ Direct solar (including space and water heating, thermal, electric)
7. ☐ Indirect solar (winds, tides, biomass, etc.)
8. ☐ Geothermal
9. ☐ Other, *specify:* ↘

_____

31

(34.) From the list of energy-related activities below indicate the item(s) that best describe the activity(ies) in which you were engaged during a typical week.
(MARK AS MANY AS APPLY)

1. ☐ Exploration
2. ☐ Extraction (gas, oil, mining)
3. ☐ Manufacture of energy-related components or products
4. ☐ Fuel processing (including refining and enriching)
5. ☐ Electric power generation
6. ☐ Transportation, transmission, distribution of fuel or energy
7. ☐ Energy storage
8. ☐ Energy utilization, management
9. ☐ Fuel reprocessing or disposal
10. ☐ Energy conservation
11. ☐ Environmental impact (health, economic, etc.)
12. ☐ Education, training
13. ☐ Other, *specify:* ↘

_____

44

(35.) From the list in question 34, enter the number of the activity that best describes the one in which you spend(t) most of your energy-related time.
(ENTER THE APPROPRIATE CODE NUMBER 01-13, FROM Q. 34)

☐☐

PART V. OTHER INFORMATION

46

(36.) During calendar year 1981, how many weeks:

a) did you work, including paid vacation, paid sick leave, and military service? _____

b) were you without a job, but looking for work; or on layoff from a job? _____

c) were you not working, not seeking work, and not on layoff from a job? _____

TOTAL = 52 weeks

52

(37.) How many years of professional work experience, including teaching, do you have?

_____ Year(s) or ☐ None

54

(38.) Since age 22, have you had any periods of at least one year's duration when you were neither employed, nor looking for work, nor attending school full-time?
(DO NOT INCLUDE TIME IN ARMED FORCES)

1. ☐ Yes, a total of _____ year(s).
2. ☐ No

56

(39.) Using the list on page 2, complete the following statement:

"Based on my total education and experience, I regard myself professionally as a (an).....

_____ "

CODE: ☐☐☐

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(40.) Are you currently a member of a national professional society or association?

1. ☐ Yes → 2. ☐ No

Specify organization(s): _____

_____

_____

_____

69

(41.) Are you currently professionally licensed, certified, or registered? For example, do you have a teaching certificate, a medical license or a professional society certification, etc.?

1. ☐ Yes → 2. ☐ No

Specify title(s): _____

_____

_____

(42.) So that we can contact you in the event it is necessary to clarify some of the information you provide, please give the telephone number on which you can be reached.

_____ _____
(AREA CODE) *(NUMBER)*

If there is an alternate number on which you can be reached, enter it also.

_____ _____
(AREA CODE) *(NUMBER)*

4/8

(43.) Date completed:

_____ _____ _____
(MONTH) *(DAY)* *(YEAR)*

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN THE COMPLETED FORM IN THE ENCLOSED POSTAGE-PAID ENVELOPE TO:

INSTITUTE FOR SURVEY RESEARCH
TEMPLE UNIVERSITY - 083-046
1601 N. BROAD STREET
PHILADELPHIA, PA 19122

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other science resources publications

Science Resources Studies Highlights

	NSF No.	Price
R&D Funds		
"Despite Recession, Companies Own R&D Funding Rose 13% During 1982"	84-314	-----
"Non-Federal Funding for Academic R&D Activities Increased at Faster Pace Than Federal Funding in Fiscal Year 1982"	84-307	-----
"Federal Academic Obligations Increased by 13% in 1982, 5% in Real Dollars"	84-305	-----
"Real Growth in Federal R&D Funds Estimated at 12% in 1984—Largest Increase Since Midsixties"	84-302	-----
"Dollar Value of U.S. R&D Expenditures Overseas Declined in 1982"	83-329	-----
"Companies Plan Increases in R&D Spending Through 1984"	83-327	-----
"Defense, General Science, and Transportation Functions Lead 1984 Federal R&D Growth"	83-323	-----
"Defense and Economy Major Factors in 7% Real Growth in National R&D Expenditures in 1984"	83-316	-----
S/E Personnel		
"Science and Engineering Employment in Academia Grew 3% in 1983"	84-317	-----
"Graduate Science/Engineering Enrollment Grew by 2% Between Fall 1981 and 1982, With Computer Sciences, Up 20%, Leading Growth"	84-313	-----
"One-Fourth of Academic Research Equipment Classified Obsolete"	84-312	-----
"Industry Reports Shortages of Scientists and Engineers Down Substantially From 1982 to 1983"	84-303	-----
"1982 Doctorate Production Stable in Science and Engineering Fields, But Down in Science and Mathematics Education"	83-330	-----
"No Change in Science and Engineering Student Quality Seen by 60% of Academic Officials; At Least 25% Perceive Improvement"	83-322	-----
"Technical Employment Growth Accelerates in Selected Nonmanufacturing Industries"	83-321	-----
"Projected Employment Scenarios Show Possible Shortages in Some Engineering and Computer Specialties"	83-307	-----
"Manufacturing Employment Becoming Increasingly More Technological"	83-303	-----

Detailed Statistical Tables

	NSF No.	Price
R&D Funds		
Academic Science/Engineering: R&D Funds, Fiscal Year 1982	84-308	-----
Research and Development in Industry, 1981: R&D Funds, 1981; Scientists and Engineers, January 1982	83-325	-----
Federal Funds for Research and Development, Fiscal Years 1982, 1983, and 1984, Volume XXXII	83-319	-----
S/E Personnel		
Scientists, Engineers, and Technicians in Trade and Regulated Industries: 1982	84-320	-----
Academic Science/Engineering: Scientists and Engineers, January 1983	84-309	-----
Academic Science/Engineering: Graduate Enrollment and Support, Fall 1982	84-306	-----
Science and Engineering Doctorates: 1960-82	83-328	-----
Scientists, Engineers, and Technicians in Manufacturing and Nonmanufacturing Industries: 1980-81	83-324	-----

Reports

	NSF No.	Price
R&D Funds		
Federal R&D Funding by Budget Functions: Fiscal Years 1983-85	84-316	-----
Federal Support to Universities, Colleges, and Selected Nonprofit Institutions: Fiscal Year 1982	84-315	-----
Federal Funds for Research and Development, Fiscal Years 1981, 1982, and 1983, Volume XXXI	83-320	$2.50
Trends to 1982 in Industrial Basic Research	83-302	$3.50
Federal R&D Funding for Energy: Fiscal Years 1971-83	83-301	-----
1990 R&D Funding Projections	82-315	$3.50
S/E Personnel		
Projected Response of the Science, Engineering, and Technical Labor Market to Defense and Nondefense Needs, 1982-87	84-304	-----
Composite		
Academic Science/Engineering: 1972-83, R&D Funds, Federal Support, Scientists and Engineers, Graduate Enrollment and Support	84-322	In press

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